

=> fil reg

FILE 'REGISTRY' ENTERED AT 09:34:40 ON 24 SEP 2008

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STRUCTURE FILE UPDATES: 22 SEP 2008 HIGHEST RN 1051655-89-0

DICTIONARY FILE UPDATES: 22 SEP 2008 HIGHEST RN 1051655-89-0

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH July 5, 2008.

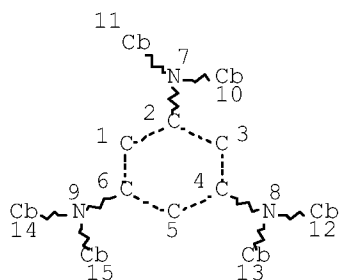
Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stdoc/properties.html>

=> d que stat 124

L13 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

GGCAT IS UNS AT 10

GGCAT IS UNS AT 11

GGCAT IS UNS AT 12

GGCAT IS UNS AT 13

GGCAT IS UNS AT 14

GGCAT IS UNS AT 15

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

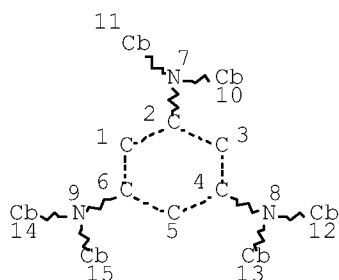
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 15

STEREO ATTRIBUTES: NONE

L14 375 SEA FILE=REGISTRY SSS FUL L13

L15 STR



## NODE ATTRIBUTES:

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GGCAT IS UNS AT 10

GGCAT IS UNS AT 11

GGCAT IS UNS AT 12

GGCAT IS UNS AT 13

GGCAT IS UNS AT 14

GGCAT IS UNS AT 15

DEFAULT ECLEVEL IS LIMITED

## GRAPH ATTRIBUTES:

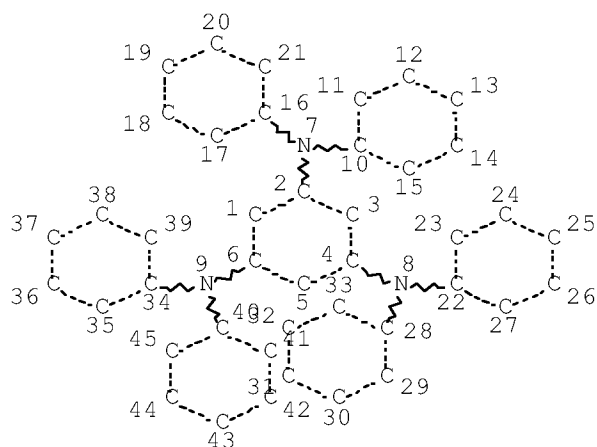
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 15

## STEREO ATTRIBUTES: NONE

L16 ( 375)SEA FILE=REGISTRY SSS FUL L15

L17 STR



## NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

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RSPEC 45 34 6 16 10 28 22

NUMBER OF NODES IS 45

## STEREO ATTRIBUTES: NONE

L18 185 SEA FILE=REGISTRY SUB=L16 SSS FUL L17

L19 84 SEA FILE=REGISTRY ABB=ON PLU=ON L18 AND NR=7

L20 55 SEA FILE=REGISTRY ABB=ON PLU=ON L19 NOT O/ELS

September 24, 2008

10/580,052

3

L22           6 SEA FILE=REGISTRY ABB=ON PLU=ON (104216-55-9/BI OR  
              138143-23-4/BI OR 147-14-8/BI OR 185690-41-9/BI OR  
              2085-33-8/BI OR 852641-11-3/BI)  
L23           2 SEA FILE=REGISTRY ABB=ON PLU=ON L22 AND L14  
L24           54 SEA FILE=REGISTRY ABB=ON PLU=ON L20 NOT L23

=> d his

(FILE 'HOME' ENTERED AT 08:57:51 ON 24 SEP 2008)

FILE 'HCAPLUS' ENTERED AT 08:58:10 ON 24 SEP 2008  
ACT GAR054AN/A

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L1 (           6)SEA FILE=REGISTRY ABB=ON PLU=ON (104216-55-9/BI OR 1381  
L2           STR  
L3 (           375)SEA FILE=REGISTRY SSS FUL L2  
L4           STR  
L5 (           185)SEA FILE=REGISTRY SUB=L3 SSS FUL L4  
L6 (           180)SEA FILE=REGISTRY ABB=ON PLU=ON L5 NOT M/ELS  
L7 (           164)SEA FILE=REGISTRY ABB=ON PLU=ON L6 AND NC=1  
L8 (           2)SEA FILE=REGISTRY ABB=ON PLU=ON L1 AND L7  
L9 (           148)SEA FILE=HCAPLUS ABB=ON PLU=ON L7  
L10 (          20)SEA FILE=HCAPLUS ABB=ON PLU=ON L8  
L11          128 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 NOT L10  
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L12          115 S L11 AND (PY<=2005 OR PRY<=2005 OR AY<=2005)

FILE 'REGISTRY' ENTERED AT 09:01:45 ON 24 SEP 2008  
ACT GAR052/A

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L14          375 SEA FILE=REGISTRY SSS FUL L13  
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              ACT GAR052S1/A  
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L15          STR  
L16 (          375)SEA FILE=REGISTRY SSS FUL L15  
L17          STR  
L18          185 SEA FILE=REGISTRY SUB=L16 SSS FUL L17  
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L19          84 S L18 AND NR=7

FILE 'STNGUIDE' ENTERED AT 09:20:03 ON 24 SEP 2008

FILE 'STNGUIDE' ENTERED AT 09:28:37 ON 24 SEP 2008

FILE 'REGISTRY' ENTERED AT 09:29:32 ON 24 SEP 2008  
L20          55 S L19 NOT O/ELS

FILE 'HCAPLUS' ENTERED AT 09:30:17 ON 24 SEP 2008  
E US20070066848/PN  
L21          1 S E3  
              SEL RN

FILE 'REGISTRY' ENTERED AT 09:30:55 ON 24 SEP 2008  
L22          6 S E1-6  
L23          2 S L22 AND L14  
L24          54 S L20 NOT L23

September 24, 2008

10/580,052

4

FILE 'HCAPLUS' ENTERED AT 09:31:26 ON 24 SEP 2008

L25           66 S L24  
L26           64 S L25 AND (PY<=2005 OR PRY<=2005 OR AY<=2005)  
L27           20 S L23  
L28           55 S L26 NOT L27

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 09:34:48 ON 24 SEP 2008

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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FILE COVERS 1907 - 24 Sep 2008 VOL 149 ISS 13

FILE LAST UPDATED: 23 Sep 2008 (20080923/ED)

HCAplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2008.

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d ibib abs hitstr hitind l28 1-55

L28 ANSWER 1 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:1357148 HCAPLUS Full-text

DOCUMENT NUMBER: 146:110888

TITLE: Light-emitting devices with anthracene derivative-metal oxide composite layers and electronic appliances using the same

INVENTOR(S): Iwaki, Yuji; Seo, Satoshi; Kawakami, Takahiro; Ikeda, Hisao; Sakata, Junichiro; Aoyama, Tomoya

PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 80 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE   |
|----------------|------|----------|-----------------|--------|
| -----          | ---- | -----    | -----           |        |
| US 20060292394 | A1   | 20061228 | US 2006-452979  | 200606 |

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| JP 2008021665          | A | 20080131 | JP 2006-171076   |    |        |
|                        |   |          |                  |    | 200606 |
|                        |   |          |                  |    | 21     |
|                        |   |          | <--              |    |        |
| CN 1885585             | A | 20061227 | CN 2006-10094005 |    |        |
|                        |   |          |                  |    | 200606 |
|                        |   |          |                  |    | 22     |
|                        |   |          | <--              |    |        |
| KR 2006134849          | A | 20061228 | KR 2006-56385    |    |        |
|                        |   |          |                  |    | 200606 |
|                        |   |          |                  |    | 22     |
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| PRIORITY APPLN. INFO.: |   |          | JP 2005-181806   | A  |        |
|                        |   |          |                  |    | 200506 |
|                        |   |          |                  |    | 22     |
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|                        |   |          | JP 2005-213708   | A  |        |
|                        |   |          |                  |    | 200507 |
|                        |   |          |                  |    | 25     |
|                        |   |          | <--              |    |        |
|                        |   |          | JP 2006-166291   | T0 |        |
|                        |   |          |                  |    | 200606 |
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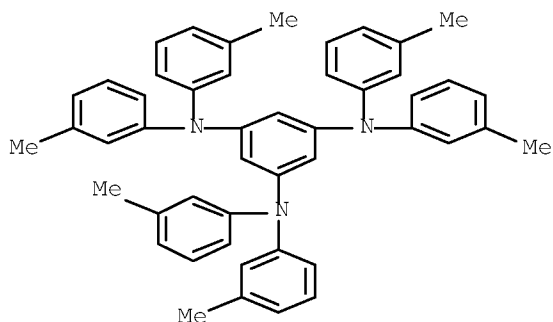
AB Light-emitting devices comprising a first electrode; a second electrode; and a light-emitting layer formed between the electrodes are described which are provided with a mixed layer, formed between the first electrode and the light-emitting layer, comprising an anthracene derivative and a metal oxide showing an electron accepting property with respect to the anthracene derivative. Light-emitting devices are also described which comprise a first electrode; a second electrode;  $n$  ( $n \geq 2$ ) light-emitting layers formed between the first electrode and the second electrode; and a first mixed layer formed between an  $m$ -th light-emitting layer ( $1 \leq m \leq n-1$ ) and an  $(m+1)$ -th light-emitting layer; and a second mixed layer formed between the  $m$ -th light emitting layer and the  $(m+1)$ -th light emitting layer, the first mixed layer being closer to the first electrode than the second electrode and containing a substance having an electron transporting property or a bipolar substance and a substance selected from alkaline earth metals, alkali metal oxides, alkaline earth metal oxides, alkali metal fluorides, and alkaline earth metal fluorides and the second mixed layer contains an an anthracene derivative and a metal oxide showing an electron accepting property with respect to the anthracene derivative. The light-emitting devices may further comprise a hole-transporting layer formed between the mixed layer and the light-emitting layer. Electronic appliances comprising the light-emitting devices are also described.

IT 168091-66-5

RL: TEM (Technical or engineered material use); USES (Uses)  
(hole-transporting material; light-emitting devices with  
anthracene derivative-metal oxide composite layers and electronic  
appliances using them)

RN 168091-66-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(3-methylphenyl)-  
(CA INDEX NAME)



INCL 428690000; 428917000; 313504000; 313506000; 257-E51.049

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

IT 65181-78-4, 4,4'-Bis[N-(3-methylphenyl)-N-phenylamino]biphenyl

123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl

139092-78-7, 4,4',4'''-Tris(N-carbazolyl)triphenylamine

~~168091-66-5~~ 787640-67-9 913655-59-1

RL: TEM (Technical or engineered material use); USES (Uses)

(hole-transporting material; light-emitting devices with anthracene derivative-metal oxide composite layers and electronic appliances using them)

L28 ANSWER 2 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:1338929 HCAPLUS Full-text

DOCUMENT NUMBER: 146:71614

TITLE: Light-emitting element, light-emitting device, and electronic device

INVENTOR(S): Sakata, Junichiro; Ikeda, Hisao; Aoyama, Tomoya; Kawakami, Takahiro; Iwaki, Yuji; Seo, Satoshi

PATENT ASSIGNEE(S): Japan

SOURCE: U.S. Pat. Appl. Publ., 31pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE       |
|------------------------|------|----------|-----------------|------------|
| -----                  | ---- | -----    | -----           |            |
| US 20060284189         | A1   | 20061221 | US 2006-448124  | 20060607   |
|                        |      |          | <--             |            |
| JP 2007019489          | A    | 20070125 | JP 2006-159754  | 20060608   |
|                        |      |          | <--             |            |
| PRIORITY APPLN. INFO.: |      |          | JP 2005-167620  | A 20050608 |
|                        |      |          | <--             |            |

AB Light-emitting elements which comprise a light-emitting layer including a green light-emitting substance (e.g., coumarin 6) between a first electrode

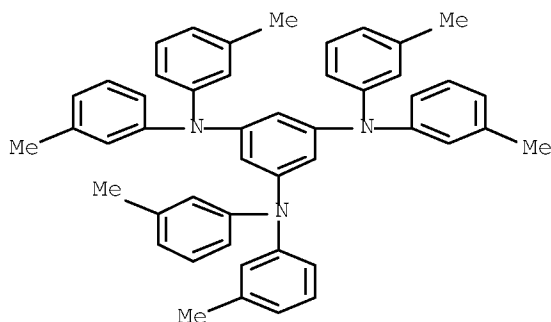
and a second electrode, and a mixed layer including a hole-transporting substance and a metal oxide having an electron-accepting property (relative to to the hole-transporting substance) between the first electrode and the second electrode; are described in which the mixed layer is in contact with the first electrode and has a thickness of 120-180 nm, and the light-emitting substance emits light when a voltage is applied between the first electrode and the second electrode such that a potential of the first electrode becomes higher than a potential of the second electrode. Displays with the element as pixels and electronic devices using the displays are also described. The mixed layers allow for simple adjustment of optical path length between the light-emitting layer and an output electrode.

IT 168091-66-5

RL: TEM (Technical or engineered material use); USES (Uses)  
(electroluminescent devices with mixed metal oxide-hole-transporting material layers and displays using them and electronic devices using the displays)

RN 168091-66-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(3-methylphenyl)-  
(CA INDEX NAME)



INCL 257079000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74, 76

IT 1313-27-5, Molybdenum oxide, uses 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 38215-36-0, Coumarin 6 65181-78-4, 4,4'-Bis[N-(3-methylphenyl)-N-phenylamino]biphenyl 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl 139092-78-7, 4,4',4''-Tris(N-carbazolyl)triphenylamine 168091-66-5 199121-98-7

RL: TEM (Technical or engineered material use); USES (Uses)  
(electroluminescent devices with mixed metal oxide-hole-transporting material layers and displays using them and electronic devices using the displays)

L28 ANSWER 3 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:1228232 HCAPLUS Full-text

DOCUMENT NUMBER: 146:16044

TITLE: Light emitting device and electronic appliance using the same

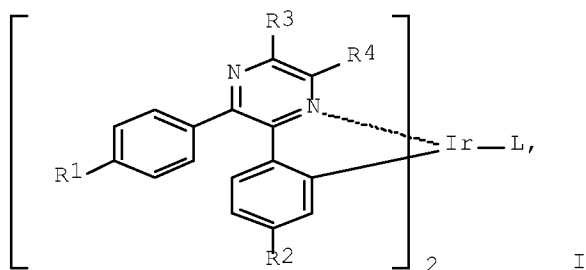
INVENTOR(S): Ohsawa, Nobuharu; Inoue, Hideko; Seo, Satoshi; Shitagaki, Satoko

PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 49pp.

CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.<br>-----    | KIND<br>---- | DATE<br>-----    | APPLICATION NO.<br>----- | DATE              |
|------------------------|--------------|------------------|--------------------------|-------------------|
| US 20060263636         | A1           | 20061123         | US 2006-431648           | 200605<br>09      |
|                        |              |                  | <--                      |                   |
| JP 2006352102          | A            | 20061228         | JP 2006-138952           | 200605<br>18      |
|                        |              |                  | <--                      |                   |
| CN 1866576             | A            | 20061122         | CN 2006-10084751         | 200605<br>19      |
|                        |              |                  | <--                      |                   |
| PRIORITY APPLN. INFO.: |              |                  | JP 2005-148777           | A<br>200505<br>20 |
|                        |              |                  | <--                      |                   |
| OTHER SOURCE(S):       |              | MARPAT 146:16044 |                          |                   |
| GI                     |              |                  |                          |                   |



AB A light emitting device is described comprising a light emitting layer between a first electrode and a second electrode; a hole transporting layer between the first electrode and the light emitting layer wherein the hole transporting layer contacts with the light emitting layer; an electron transporting layer between the second electrode and the light emitting layer wherein the electron transporting layer contacts with the light emitting layer; and a mixed layer between the electron transporting layer and the second electrode wherein the mixed layer includes an electron transporting substance and a substance showing an electron donating property with respect to the electron transporting substance, wherein the light emitting layer includes an organometallic complex represented by the general formula I and a host, wherein R1 and R2 each represent an electron-withdrawing group, R3 and R4 each represent any one of hydrogen or an alkyl group having 1 to 4 carbon atoms, L represents a monoanionic ligand.

IT 168091-66-5

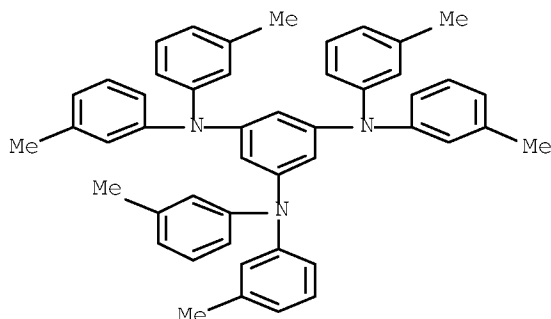
RL: TEM (Technical or engineered material use); USES (Uses)  
 (hole transporting layer; light emitting device using



organometallic complex and electronic appliance using same)

RN 168091-66-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(3-methylphenyl)-  
(CA INDEX NAME)



INCL 428690000; 428917000; 313504000; 313506000; 257-E51.044

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76, 78

IT 65181-78-4, 4,4'-Bis[N-(3-methylphenyl)-N-phenylamino]biphenyl

139092-78-7, 4,4',4'''-Tris(N-carbazolyl) triphenylamine

~~168091-66-5~~

RL: TEM (Technical or engineered material use); USES (Uses)

(hole transporting layer; light emitting device using

organometallic complex and electronic appliance using same)

L28 ANSWER 4 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:1156032 HCAPLUS Full-text

DOCUMENT NUMBER: 145:480151

TITLE: Light emitting element with a mixed layer  
including an aromatic hydrocarbon and a metal  
oxide, light emitting device, and electronic  
device

INVENTOR(S): Iwaki, Yuji; Seo, Satoshi; Kawakami, Takahiro;  
Ikeda, Hisao; Sakata, Junichiro

PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan

SOURCE: PCT Int. Appl., 79pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO.  | DATE     |
|---------------|------|----------|------------------|----------|
| -----         | ---- | -----    | -----            |          |
| WO 2006115232 | A1   | 20061102 | WO 2006-JP308481 | 20060417 |

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CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN,  
KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK,

MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO,  
 RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ,  
 UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,  
 IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR,  
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,  
 TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
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 JP 2006324650 A 20061130 JP 2006-113439  
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 KR 2008005441 A 20080111 KR 2007-727093  
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 CN 101203968 A 20080618 CN 2006-80022551  
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 PRIORITY APPLN. INFO.: JP 2005-124296 A  
 200504  
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 WO 2006-JP308481 W  
 200604  
 17

AB One aspect of the present invention is a light emitting element having a layer including an aromatic hydrocarbon and a metal oxide between a pair of electrodes. The kind of aromatic hydrocarbon is not particularly limited; however, an aromatic hydrocarbon having hole mobility of  $1 + 10^{-6}$  cm<sup>2</sup>/Vs or more is preferable. Examples of such aromatic hydrocarbons are 2-tert-butyl-9,10-di(2-naphthyl)anthracene, anthracene, 9,10-diphenylanthracene, tetracene, rubrene, perylene, and 2,5,8,11-tetra(tert-butyl)perylenene. As the metal oxide, a metal which shows an electron-accepting property to the aromatic hydrocarbon is preferable, with examples such as molybdenum oxide, vanadium oxide, ruthenium oxide, and rhenium oxide.

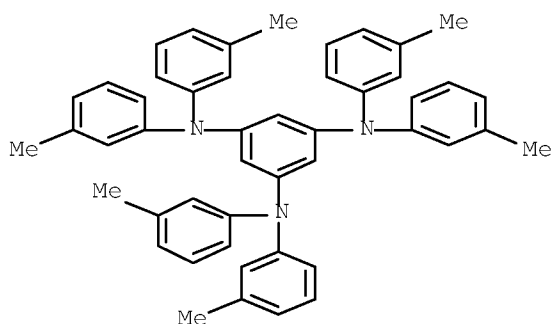
IT 168091-66-5

RL: DEV (Device component use)

(hole-transporting layer; light emitting element with mixed layer including aromatic hydrocarbon and metal oxide, light emitting device, and electronic device)

RN 168091-66-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(3-methylphenyl)-(CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74, 76

IT 65181-78-4, 4,4'-Bis[N-(3-methylphenyl)-N-phenylamino]biphenyl

123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl

139092-78-7, 4,4',4'''-Tris(N-carbazolyl)triphenylamine

~~168091-66-5~~ 787640-67-9 913655-59-1

RL: DEV (Device component use)

(hole-transporting layer; light emitting element with mixed layer including aromatic hydrocarbon and metal oxide, light emitting device, and electronic device)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 5 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:1069986 HCAPLUS Full-text

DOCUMENT NUMBER: 145:429603

TITLE: Display device including a light-emitting element and electronic device using the same

INVENTOR(S): Hayakawa, Masahiko; Yoshitomi, Shuhei; Tokumaru, Ryo

PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 23pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.     | KIND | DATE     | APPLICATION NO.  | DATE     |
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| US 20060228822 | A1   | 20061012 | US 2006-389233   | 20060327 |
|                |      |          | <--              |          |
| CN 1849023     | A    | 20061018 | CN 2006-10071996 | 20060406 |
|                |      |          | <--              |          |
| JP 2006317921  | A    | 20061124 | JP 2006-108185   | 20060411 |
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PRIORITY APPLN. INFO.:

JP 2005-113054

A

200504

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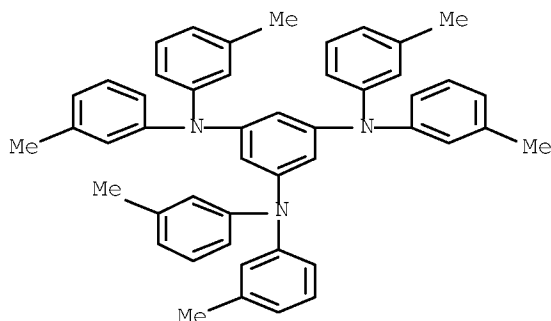
AB A display device and an electronic device is described in which the display device can accurately correct an elec. potential transmitted to a light-emitting element by using a light-emitting element and a monitoring light-emitting element both of which have the same progress of change with time. The display device uses a first light-emitting element, a second light-emitting element, a constant current source, and an amplifier. Each of the first light-emitting element and the second light-emitting element has a first layer including an organic compound and an inorg. compound and a second layer including a light-emitting substance, which are stacked between a pair of electrodes. The first layer is provided over the second layer. Alternatively, the second layer is provided over the first layer.

IT 168091-66-5

RL: TEM (Technical or engineered material use); USES (Uses)  
(display device including a light-emitting element and electronic device using the same)

RN 168091-66-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(3-methylphenyl)-  
(CA INDEX NAME)



INCL 438034000

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 147-14-8, Copper phthalocyanine 517-51-1, 5,6,11,12-Tetraphenyl naphthacene 574-93-6, Phthalocyanine 1308-38-9, Chromium oxide, uses 1313-13-9, Manganese oxide, uses 1313-27-5, Molybdenum oxide, uses 1313-96-8, Niobium oxide 1314-23-4, Zirconium oxide, uses 1314-35-8, Tungsten oxide, uses 1314-61-0, Tantalum oxide 1314-62-1, Vanadium oxide, uses 2085-33-8, Tris(8-quinolinolato)aluminum 12055-23-1, Hafnium oxide 12624-27-0, Rhenium oxide 13463-67-7, Titanium oxide, uses 13930-88-6, Vanadyl phthalocyanine 19205-19-7, N,N'-Dimethylquinacridone 38215-36-0 65181-78-4, 4,4'-Bis[N-(3-methylphenyl)-N-phenylamino]biphenyl 105389-36-4, 4,4',4'''-Tris(N,N-diphenylamino)triphenylamine 122648-99-1, 9,10-Di(2-naphthyl)anthracene 123847-85-8, 4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl 124729-98-2, 4,4',4'''-Tris[N-(3-methylphenyl)-N-phenylamino]triphenylamine 134008-76-7 139092-78-7 168091-66-5 199121-98-7 873793-58-9 873793-75-0

RL: TEM (Technical or engineered material use); USES (Uses)  
(display device including a light-emitting element and electronic

device using the same)

L28 ANSWER 6 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2006:437747 HCAPLUS Full-text  
 DOCUMENT NUMBER: 144:458225  
 TITLE: Light-emitting element and light emitting device  
 using the same  
 INVENTOR(S): Kumaki, Daisuke; Seo, Satoshi  
 PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan  
 SOURCE: PCT Int. Appl., 90 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO.  | DATE          |
|---|------|----------|------------------|---------------|
| WO 2006049323   | A1   | 20060511 | WO 2005-JP20663  | 20051104      |
| <--   |      |          |                  |               |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,<br>CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,<br>GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM,<br>KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG,<br>MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT,<br>RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT,<br>TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW<br>RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,<br>IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR,<br>BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,<br>TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,<br>ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM |      |          |                  |               |
| JP 2006156997   | A    | 20060615 | JP 2005-321041   | 20051104      |
| <--   |      |          |                  |               |
| CN 101053091  | A    | 20071010 | CN 2005-80037622 | 20051104      |
| <--   |      |          |                  |               |
| US 20070170847  | A1   | 20070726 | US 2006-584333   | 20060623      |
| <--   |      |          |                  |               |
| PRIORITY APPLN. INFO.:  |      |          | JP 2004-322995   | A<br>20041105 |
| <--   |      |          |                  |               |
|   |      |          | WO 2005-JP20663  | W<br>20051104 |
| <--   |      |          |                  |               |
| AB Light-emitting elements comprising (in order) a first electrode, a first layer<br>(or first region), a second layer (or second region), a layer containing a<br>light-emitting material, and a second electrode are described in which the<br>first layers includes an aromatic amine compound and a first substance that<br>can act as an electron acceptor to the aromatic amine compound and the second   |      |          |                  |               |

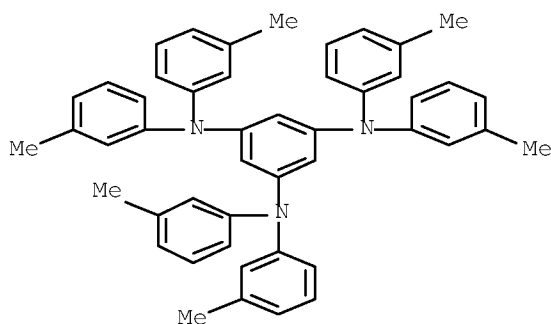
layer includes a second substance which is a better electron transporter than a hole transporter, and a third substance showing an electron donating property to the second substance. The third substance may be an alkali metal oxide or an alkaline earth metal oxide. Displays employing the elements (and devices incorporating the displays) are also described.

IT 168091-66-5

RL: DEV (Device component use); USES (Uses)  
(organic light-emitting device structures using mixed material layers)

RN 168091-66-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(3-methylphenyl)-  
(CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

IT 2085-33-8, Tris(8-quinolinolato)aluminum 123847-85-8,  
4,4'-Bis[N-(1-naphthyl)-N-phenylamino]biphenyl 168091-66-5  
787640-67-9

RL: DEV (Device component use); USES (Uses)  
(organic light-emitting device structures using mixed material layers)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L28 ANSWER 7 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:343267 HCAPLUS Full-text

DOCUMENT NUMBER: 144:378761

TITLE: Light-emitting element having composite layers  
of organic and inorganic compounds and  
electronic devices employing the light-emitting  
element

INVENTOR(S): Yamazaki, Shunpei; Ikeda, Hisao; Seo, Satoshi;  
Kumaki, Daisuke; Sakata, Junichiro

PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., Japan

SOURCE: PCT Int. Appl., 56 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|------|-----------------|------|
|------------|------|------|-----------------|------|

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WO 2006038573

A1

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WO 2005-JP18225200509  
26

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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,  
CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM,  
KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK,  
MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO,  
RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ,  
UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,  
IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR,  
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,  
TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

CN 101036246

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CN 2005-80033466

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JP 2006128097

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20060518

JP 2005-286201

200509  
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PRIORITY APPLN. INFO.:

JP 2004-290678

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WO 2005-JP18225

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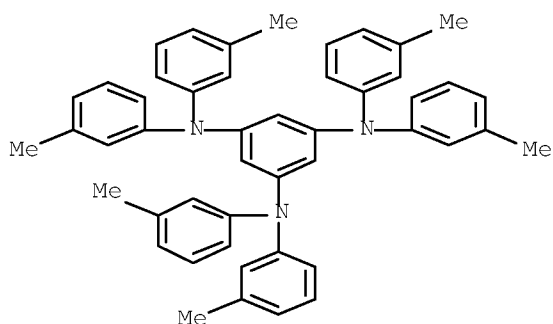
AB Light-emitting elements are described which comprise at least a first  
electrode and a second electrode; a first layer between the first electrode  
and the second electrode, the first layer including a first organic compound  
and a first inorg. compound that exhibits an electron accepting property to  
the first organic compound; a second layer between the first layer and the  
second electrode, the second layer including a second organic compound that is  
luminescent and a second inorg. compound; and a third layer between a second  
layer and the second electrode, the third layer including a third organic  
compound and a third inorg. compound that exhibits an electron donating  
property to the third organic compound

IT 168091-66-5

RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(light-emitting element having composite layers of organic and  
inorg. compds. and electronic devices employing light-emitting  
element)

RN 168091-66-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(3-methylphenyl)-  
(CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74, 76

IT 2085-33-8, Aluminum tris(8-hydroxyquinolinato) 11098-99-0,

Molybdenum oxide 123847-85-8, NPB ~~168091-66-5~~

RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(light-emitting element having composite layers of organic and inorg. compds. and electronic devices employing light-emitting element)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 8 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:193629 HCAPLUS Full-text

DOCUMENT NUMBER: 144:283342

TITLE: Method of manufacturing electron device and organic electroluminescent display and ink for organic amorphous film

INVENTOR(S): Yasukawa, Akiko; Uchino, Shoichi; Arai, Yoshihiro; Tanaka, Masahiro; Ito, Masato; Yaguchi, Tomio

PATENT ASSIGNEE(S): Japan

SOURCE: U.S. Pat. Appl. Publ., 17 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.     | KIND | DATE     | APPLICATION NO.  | DATE     |
|----------------|------|----------|------------------|----------|
| -----          | ---- | -----    | -----            |          |
| US 20060045959 | A1   | 20060302 | US 2005-207838   | 20050822 |
|                |      |          | <--              |          |
| JP 2006066294  | A    | 20060309 | JP 2004-249050   | 20040827 |
|                |      |          | <--              |          |
| CN 1741693     | A    | 20060301 | CN 2005-10093547 | 20050829 |
|                |      |          | <--              |          |



PRIORITY APPLN. INFO.:

JP 2004-249050

A

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AB The present invention provides a method which can form a uniform amorphous film using an organic low mol. weight material which is refined by distillation or sublimation. The viscosity of ink is regulated by mixing two kinds of solvents so as to increase a surface tension of the ink and the solubility of the organic material in a drying step whereby an amorphous film made of an organic material is selectively formed in a recessed region defined by a partition wall layer using an ink jet method.

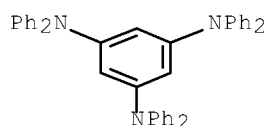
IT 126717-23-5

RL: DEV (Device component use); USES (Uses)

(Method of manufacturing electron device and organic electroluminescent display and ink for organic amorphous film)

RN 126717-23-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



INCL 427066000; 252301160

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 126717-23-5 693794-98-8

RL: DEV (Device component use); USES (Uses)

(Method of manufacturing electron device and organic electroluminescent display and ink for organic amorphous film)

L28 ANSWER 9 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:152776 HCAPLUS Full-text

DOCUMENT NUMBER: 144:222301

TITLE: Multilayered structures for light-emitting devices

INVENTOR(S): He, Gufeng; Pfeiffer, Martin; Blochwitz-Nimoth, Jan

PATENT ASSIGNEE(S): Novalde GmbH, Germany; Technische Universitaet Dresden

SOURCE: PCT Int. Appl., 51 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------|------|----------|-----------------|----------|
| -----         | ---- | -----    | -----           |          |
| WO 2006015567 | A1   | 20060216 | WO 2005-DE1076  | 20050616 |

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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,

GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM,  
 KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,  
 MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,  
 SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA,  
 UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,  
 IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF,  
 BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG,  
 BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,  
 AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 EP 1789994 A1 20070530 EP 2005-766723

200506  
 16

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R: GB, NL  
 JP 2008509565 T 20080327 JP 2007-525155

200506  
 16

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TW 285441 B 20070811 TW 2005-94123656

200507  
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KR 2007056061 A 20070531 KR 2007-703457

200702  
 13

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US 20080203406 A1 20080828 US 2007-573617

200710  
 12

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PRIORITY APPLN. INFO.: DE 2004-102004039594A

200408  
 13

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EP 2004-19276 A

200408  
 13

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WO 2005-DE1076 W

200506  
 16

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AB Multilayered structures for light-emitting devices, especially phosphorescent organic light-emitting diodes, comprising a hole-injecting contact and an electron-injecting contact, each linked with a light-emitting region are described in which the light-emitting region comprises heterojunction formed from a light-emitting layer comprising an ambipolar (and preferably hole-transporting) material (M1) and another light-emitting layer comprising another ambipolar (and preferably electron-transporting) material (M2) between which a staggered type II interface is formed; M1 and M2 incorporate  $\geq 1$  triplet-emitting dopants and the energy barriers to hole transfer from M1 to M2 and to electron transfer from M2 to M1 are each  $\leq 0.4$  eV. Devices possessing the structures are also described.

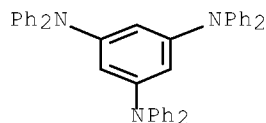
IT 126717-23-5, 1,3,5-Tris(diphenylamino)benzene

RL: DEV (Device component use)

(multilayered structures for light-emitting devices)

RN 126717-23-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



IC ICM H01L051-50  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 Section cross-reference(s): 76  
 IT 81-84-5, 1H,3H-Naphtho[1,8-cd]pyran-1,3-dione 91-19-0, Quinoxaline 91-22-5, Quinoline, uses 110-02-1D, Thiophene, derivs. 273-13-2D, 2,1,3-Benzothiadiazole, derivs. 288-88-0, 1H-1,2,4-Triazole 542-92-7D, Cyclopentadiene, derivs. 629-20-9D, Cyclooctatetraene, derivs. 1662-01-7, Bathophenanthroline 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 2382-08-3 11120-54-0D, Oxadiazole, derivs. 23749-58-8 36118-45-3D, Pyrazoline, derivs. 37275-48-2, Bipyridine 38332-84-2, Poly(p-perfluorophenylene) 65181-78-4, TPD 87433-10-1 105389-36-4, 4,4',4'''-Tris(N,N-diphenylamino)triphenylamine 122738-21-0 124729-98-2, m-MTDATA ~~126717-23-5~~, 1,3,5-Tris(diphenylamino)benzene 139092-78-7, 4,4',4'''-Tris(N-carbazolyl)triphenylamine 139255-17-7 146162-54-1, BALq 185690-39-5, 4,4',4'''-Tris(N(1-naphthyl)-N-phenylamino)triphenylamine 189363-47-1 192198-85-9, TPBI 350042-00-1  
 RL: DEV (Device component use)  
 (multilayered structures for light-emitting devices)  
 REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 10 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2006:10788 HCAPLUS Full-text  
 DOCUMENT NUMBER: 144:117899  
 TITLE: Top-emitting organic electroluminescent devices showing resistance to water and oxygen  
 INVENTOR(S): Kimura, Hiroshi  
 PATENT ASSIGNEE(S): Fuji Electric Holding Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------|------|----------|-----------------|----------|
| -----         | ---- | -----    | -----           |          |
| JP 2006004721 | A    | 20060105 | JP 2004-178792  | 20040616 |

PRIORITY APPLN. INFO.:

JP 2004-178792

20040616

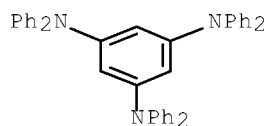
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AB The device comprises a substrate, a reflection electrode, an organic electroluminescent layer, a transparent electrode, and a trapping agent layer, with the trapping layer containing  $\geq 1$  compd(s). contained in the layers forming the device. The trapping layer may be formed by vapor deposition. Also claimed are the said devices including  $\geq 1$  trapping agents selected from anthracene, coronene, perylene, rubrene,  $C_6H_5XZ$  ( $X = C_6H_4$ , etc.;  $Z = Ph$ , naphthyl, etc), certain complexes of Al, Be, Zn, Mg, Ga, etc., oxadiazoles, triazoles, thiophenes, etc. The organic electroluminescent layers can be protected from water and O.

IT 126717-23-5, p-DPA-TDAB  
RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(p-DPA-TDAB, oxygen- and water-trapping agent; top-emitting organic electroluminescent devices equipped with water- and oxygen-trapping layers)

RN 126717-23-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 126717-23-5, p-DPA-TDAB  
RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(p-DPA-TDAB, oxygen- and water-trapping agent; top-emitting organic electroluminescent devices equipped with water- and oxygen-trapping layers)

L28 ANSWER 11 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:1202886 HCAPLUS Full-text

DOCUMENT NUMBER: 144:202662

TITLE: Charge transport in amorphous molecular materials

AUTHOR(S): Shirota, Yasuhiko; Okumoto, Kenji; Ohishi, Hitoshi; Tanaka, Masatake; Nakao, Masato; Wayaku, Kenjiro; Nomura, Satoyuki; Kageyama, Hiroshi

CORPORATE SOURCE: Fukui Univ. of Technology, 3-6-1, Gakuen Fukui City, Fukui, 910-8505, Japan

SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2005), 5937(Organic Light-Emitting Materials and Devices IX), 593717/1-593717/10  
CODEN: PSISDG; ISSN: 0277-786X

PUBLISHER: SPIE-The International Society for Optical Engineering

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Charge carrier drift mobilities of hole-transporting amorphous mol. materials have been determined by a time-of-flight method. Elec.-field and temperature dependencies of carrier mobilities have been analyzed in terms of the disorder

formalism, and charge transport in amorphous mol. materials is discussed in relation to mol. structures. Hole-transporting amorphous mol. materials with high mobilities of the order of 10-2cm2V-1s-1 have been developed.

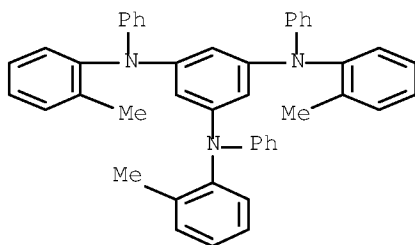
IT 142143-88-2, 1,3,5-Tris(2-methylphenylphenylamino)benzene

RL: PRP (Properties)

(charge-carrier drift mobilities of hole-transporting amorphous mol. materials by time-of-flight method)

RN 142143-88-2 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(2-methylphenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



CC 76-1 (Electric Phenomena)

IT 65181-78-4, N, N'-Diphenyl-N, N'-bis(3-methylphenyl)-[1,1'-biphenyl]-4,4'-diamine 82532-74-9, 4-Diphenylaminobenzaldehyde methylphenylhydrazone 105389-36-4 142143-88-2, 1,3,5-Tris(2-methylphenylphenylamino)benzene 874946-05-1

RL: PRP (Properties)

(charge-carrier drift mobilities of hole-transporting amorphous mol. materials by time-of-flight method)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 12 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:231570 HCAPLUS Full-text

DOCUMENT NUMBER: 142:306391

TITLE: Electrophotographic photoconductor, electrophotographic process, electrophotographic apparatus, and process cartridge

INVENTOR(S): Ikegami, Takaaki; Nohsho, Shinji; Kurimoto, Eiji; Kami, Hidetoshi; Sugino, Akihiro; Yamashita, Yasuyuki; Nakamori, Hideo; Takada, Takeshi

PATENT ASSIGNEE(S): Ricoh Company, Japan

SOURCE: Eur. Pat. Appl., 246 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE |
|------------|------|----------|-----------------|------|
| EP 1515192 | A1   | 20050316 | EP 2004-21562   |      |

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|                        |    |  |                  |   |     |              |
|------------------------|----|--|------------------|---|-----|--------------|
|                        | R: | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,<br>PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU,<br>PL, SK, HR |                  |   | <-- |              |
| JP 2005084583          | A  | 20050331   | JP 2003-319362   |   |     | 200309<br>11 |
|                        |    |  |                  |   | <-- |              |
| JP 4079858             | B2 | 20080423   |                  |   |     |              |
| JP 2005092068          | A  | 20050407   | JP 2003-328177   |   |     | 200309<br>19 |
|                        |    |  |                  |   | <-- |              |
| JP 2005107471          | A  | 20050421   | JP 2003-421103   |   |     | 200312<br>18 |
|                        |    |  |                  |   | <-- |              |
| JP 2006030784          | A  | 20060202   | JP 2004-211846   |   |     | 200407<br>20 |
|                        |    |  |                  |   | <-- |              |
| CN 1619425             | A  | 20050525   | CN 2004-10103887 |   |     | 200409<br>13 |
|                        |    |  |                  |   | <-- |              |
| US 20050118518         | A1 | 20050602   | US 2004-938585   |   |     | 200409<br>13 |
|                        |    |  |                  |   | <-- |              |
| US 7314693             | B2 | 20080101   |                  |   |     |              |
| PRIORITY APPLN. INFO.: |    |  | JP 2003-319362   | A |     | 200309<br>11 |
|                        |    |  |                  |   | <-- |              |
|                        |    |  | JP 2003-321814   | A |     | 200309<br>12 |
|                        |    |  |                  |   | <-- |              |
|                        |    |  | JP 2003-328177   | A |     | 200309<br>19 |
|                        |    |  |                  |   | <-- |              |
|                        |    |  | JP 2003-421103   | A |     | 200312<br>18 |
|                        |    |  |                  |   | <-- |              |
|                        |    |  | JP 2004-211846   | A |     | 200407<br>20 |
|                        |    |  |                  |   | <-- |              |

OTHER SOURCE(S) : MARPAT 142:306391

AB The present invention relates to an electrophotog. photoconductor comprising a photoconductive layer, a protective layer, and a conductive support, wherein the protective layer is disposed as the outermost layer of the photoconductive layer, and 20 % by volume to 60 % by volume of fine particles of fluorine-contained resin and at least one compound selected from amine aromatic compds. and hydroxy aromatic compds. are incorporated into the protective layer. According to the present invention, high durability may be achieved, image degradation such as lags may be controlled from the increase of residual potential and decrease of charging, and high quality images may be formed

stably even after the prolonged and repeated usage. The present invention also relates to an electrophotog. process, an electrophotog. apparatus and a process cartridge for the electrophotog. apparatus which utilize the electrophotog. photoconductor resp.

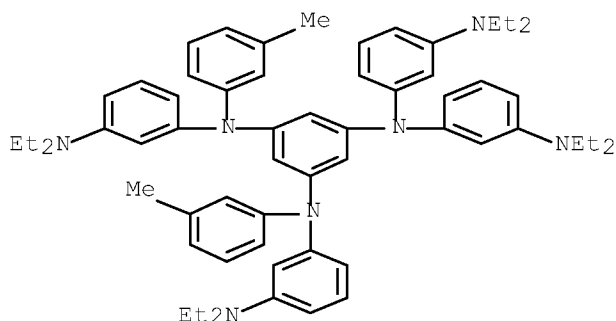
IT 847872-27-9

RL: TEM (Technical or engineered material use); USES (Uses)

(protective layer of electrophotog. photoconductor, containing)

RN 847872-27-9 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N5-tetrakis[3-(diethylamino)phenyl]-  
N3,N5-bis(3-methylphenyl)- (CA INDEX NAME)



IC ICM G03G005-147

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)

IT 88-58-4 4483-91-4 7030-63-9 7475-96-9 10004-39-4

26172-18-9 27907-76-2 33906-02-4 42051-93-4 62555-82-2

64287-26-9 67707-84-0 85979-45-9 94939-64-7 96924-07-1

101836-19-5 113318-52-8 119062-22-5 119564-40-8 119629-15-1

139601-36-8 170636-06-3 205327-03-3 501367-56-2 501367-58-4

501367-59-5 501367-60-8 501367-62-0 501367-63-1 501367-64-2

501367-66-4 501367-67-5 501367-69-7 501367-70-0 501367-71-1

501367-72-2 501367-74-4 501367-75-5 501367-76-6 501367-77-7

501367-78-8 501367-87-9 501367-89-1 501367-98-2 501368-02-1

501368-03-2 501368-04-3 676125-30-7 676448-98-9 676448-99-0

676449-01-7 676449-02-8 741707-19-7 741707-21-1 749217-90-1

749217-95-6 749217-97-8 749218-00-6 754200-73-2 757961-43-6

775347-52-9 775347-53-0 775347-54-1 775347-56-3 775350-65-7

775350-66-8 775350-67-9 804565-24-0 847661-62-5 847872-24-6

847872-25-7 847872-26-8 847872-27-9 847872-28-0

847872-29-1 847872-30-4 847872-31-5 847872-32-6 847872-33-7

847872-34-8 847872-35-9 847872-36-0 847872-37-1 847872-38-2

847872-39-3 847872-40-6 847872-41-7 847872-42-8 847872-43-9

847872-44-0 847872-45-1 847872-46-2 847872-47-3 847872-48-4

847872-49-5 847872-50-8 847872-51-9 847872-52-0 847872-53-1

847872-54-2

RL: TEM (Technical or engineered material use); USES (Uses)

(protective layer of electrophotog. photoconductor, containing)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L28 ANSWER 13 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:138480 HCAPLUS Full-text

DOCUMENT NUMBER: 142:249440

TITLE: Organic electroluminescent elements with improved brightness, emission efficiency, and durability and lighting apparatus and displays using them

INVENTOR(S): Oshiyama, Tomohiro; Kato, Eisaku; Suzurizato, Yoshiyuki; Kita, Hiroshi

PATENT ASSIGNEE(S): Konica Minolta Holdings, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 57 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE       |
|------------------------|------|----------|-----------------|------------|
| JP 2005044791          | A    | 20050217 | JP 2004-195397  | 20040701   |
| <--                    |      |          |                 |            |
| PRIORITY APPLN. INFO.: |      |          | JP 2003-193520  | A 20030708 |
| <--                    |      |          |                 |            |

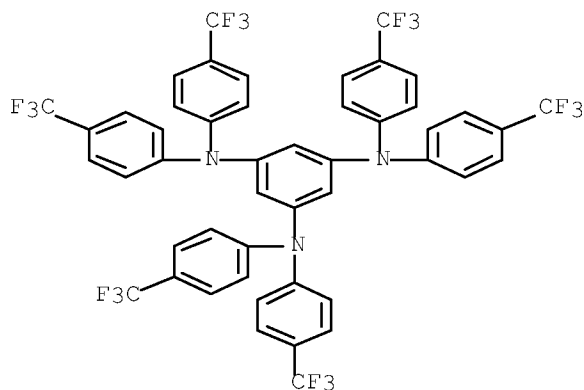
OTHER SOURCE(S): MARPAT 142:249440

AB The elements, useful for blue- or white-emitting backlights for LCD, have layers containing triarylamine derivs. bearing electron-withdrawing groups adjacent to light-emitting layers between anodes and cathodes. The layers show good hole-barrier properties.

IT 844665-53-8 844665-54-9  
RL: DEV (Device component use); USES (Uses)  
(hole-barrier layer; organic EL elements containing electron-withdrawing triarylamine in hole-barrier layers for displays with good brightness, emission efficiency, and durability)

RN 844665-53-8 HCAPLUS

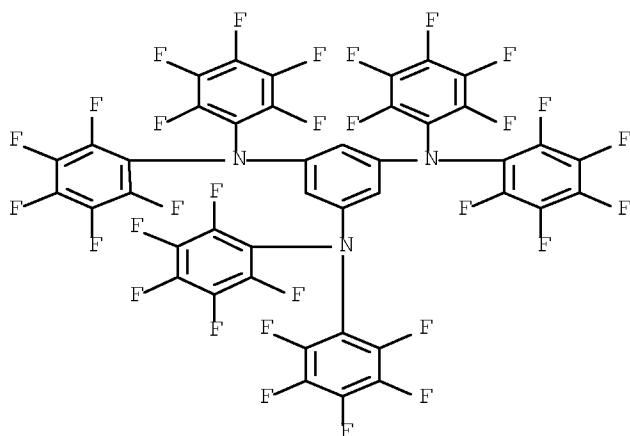
CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis[4-(trifluoromethyl)phenyl]- (CA INDEX NAME)



RN 844665-54-9 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(2,3,4,5,6-pentafluorophenyl)- (CA INDEX NAME)





IC ICM H05B033-22  
ICS C07C211-56; C09K011-06; H05B033-14  
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 73  
IT 1821-41-6 152842-19-8 817638-43-0 817638-44-1 817638-51-0  
844665-51-6 844665-52-7 ~~844665-53-8~~ ~~844665-54-9~~  
844665-55-0 844665-56-1 844665-57-2 844665-58-3 844665-59-4  
RL: DEV (Device component use); USES (Uses)  
(hole-barrier layer; organic EL elements containing electron-withdrawing  
triarylamines in hole-barrier layers for displays with good  
brightness, emission efficiency, and durability)

L28 ANSWER 14 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2005:35085 HCAPLUS Full-text  
DOCUMENT NUMBER: 142:102910  
TITLE: Organic electroluminescent device, illuminating  
device, and display  
INVENTOR(S): Oshiyama, Tomohiro; Kita, Hiroshi; Katoh, Eisaku  
PATENT ASSIGNEE(S): Konica Minolta Holding, Inc., Japan  
SOURCE: PCT Int. Appl., 80 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------|------|----------|-----------------|----------|
| WO 2005004549 | A1   | 20050113 | WO 2004-JP9391  | 20040625 |

&lt;--

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,  
CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,  
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,  
SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,

VC, VN, YU, ZA, ZM, ZW  
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,  
AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,  
DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL,  
PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG  
EP 1651013 A1 20060426 EP 2004-746860  
200406  
25  
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU,  
PL, SK, HR  
CN 1817066 A 20060809 CN 2004-80019019  
200406  
25  
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US 20070099025 A1 20070503 US 2005-562652  
200512  
27  
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US 7371469 B2 20080513  
PRIORITY APPLN. INFO.: JP 2003-193519 A  
200307  
08  
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WO 2004-JP9391 W  
200406  
25  
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AB An organic electroluminescent device comprising at least a light-emitting layer containing a phosphorescent compound between an anode and a cathode is characterized by comprising an adjoining layer so arranged between the light-emitting layer and the cathode as to be adjacent to the light-emitting layer and containing a compound with an electron-withdrawing group having an HOMO at -5.7 eV to -7.0 eV and an LUMO at -1.3 eV to -2.3 eV.

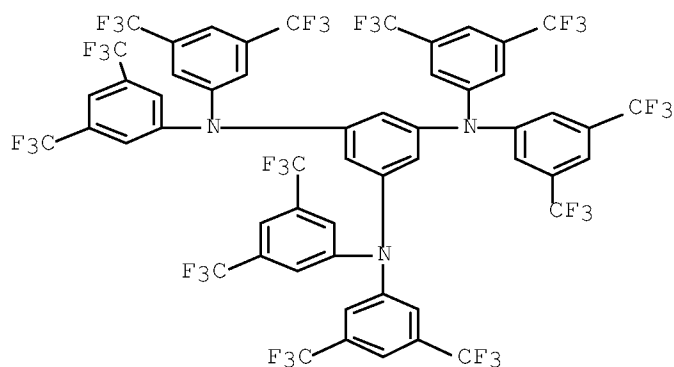
IT 817638-41-8

RL: DEV (Device component use); USES (Uses)

(organic electroluminescent device, illumination apparatus and display)

RN 817638-41-8 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis[3,5-bis(trifluoromethyl)phenyl]- (CA INDEX NAME)



IC ICM H05B033-22  
ICS H05B033-14; G02F001-1335  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 74  
IT 372956-40-6 ~~817638-41-8~~ 817638-42-9 817638-43-0  
817638-44-1 817638-45-2 817638-46-3 817638-47-4 817638-48-5  
817638-49-6 817638-50-9 817638-51-0 817638-53-2 817638-55-4  
817638-56-5  
RL: DEV (Device component use); USES (Uses)  
(organic electroluminescent device, illumination apparatus and display)  
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L28 ANSWER 15 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2004:957380 HCAPLUS Full-text  
DOCUMENT NUMBER: 141:396986  
TITLE: Organic colorants with metallic gloss and  
film-forming materials containing them with  
excellent dispersion stability  
INVENTOR(S): Ogura, Katsuyuki; Kurata, Ryuichiro; Kano,  
Fumihisa  
PATENT ASSIGNEE(S): Chiba University, Japan; Toyo Ink Mfg. Co., Ltd.  
SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

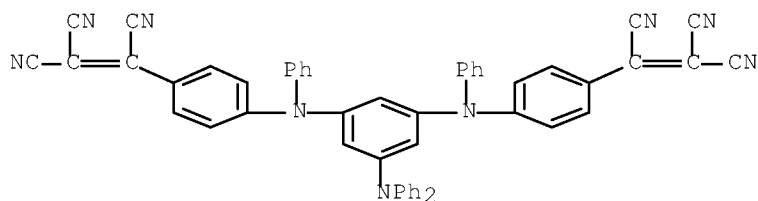
| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------|------|----------|-----------------|----------|
| JP 2004315545 | A    | 20041111 | JP 2003-55065   | 20030303 |

PRIORITY APPLN. INFO.: JP 2003-52095 A 20030228

AB The colorants, useful for writing and printing inks and coatings, are depicted as A[NRXC(CN):C(CN)2]<sub>n</sub> [A = (un)substituted aromatic, heterocyclic, condensed, or spirocyclic ring residue, (un)substituted biphenyl, fluorene, or triphenylamine-based dendrimer residue; X = (un)substituted aromatic or heterocyclic ring residue; R = (un)substituted aromatic group, heterocyclic group, alkyl, alkenyl, or cycloalkyl; n ≥ 2]. Thus, an ink containing N,N'-bis(4-tricyanoethenylphenyl)-N,N'-diphenylbenzidine (prepared from N,N,N',N'-tetraphenylbenzidine and tetracyanoethylene), a rosin-modified phenolic resin, and a petroleum-type solvent showed good gloss and adhesion to paper and metal.

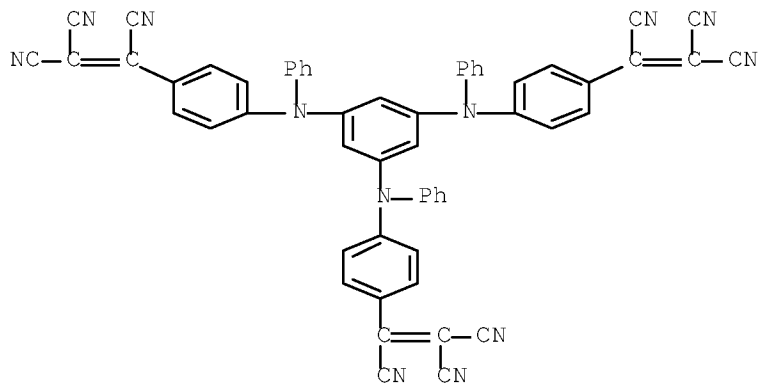
IT 790256-28-9P, 1,3-Bis[[4-(tricyanoethenyl)phenyl]phenylamino]-5-(diphenylamino)benzene 790256-29-0P, 1,3,5-Tris[[4-(tricyanoethenyl)phenyl]phenylamino]benzene  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(colorant; organic colorants with metallic gloss for inks and coatings with good storage stability)  
RN 790256-28-9 HCAPLUS

CN Ethenetricarbonitrile, 2,2'-[[5-(diphenylamino)-1,3-phenylene]bis[(phenylimino)-4,1-phenylene]]bis- (9CI) (CA INDEX NAME)



RN 790256-29-0 HCAPLUS

CN Ethenetricarbonitrile, 2,2',2''-[1,3,5-benzenetriyltris[(phenylimino)-4,1-phenylene]]tris- (9CI) (CA INDEX NAME)



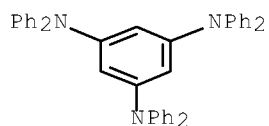
IT 126717-23-5, 1,3,5-Tris(diphenylamino)benzene

RL: RCT (Reactant); RACT (Reactant or reagent)

(for colorant preparation; organic colorants with metallic gloss for inks and coatings with good storage stability)

RN 126717-23-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



IC ICM C09B023-00

ICS C08L005-00; C08L101-00; C09D007-12; C09D201-00

CC 42-12 (Coatings, Inks, and Related Products)

Section cross-reference(s): 25, 41

IT 790256-24-5P, N,N'-Bis(4-tricyanoethenylphenyl)-N,N'-diphenylbenzidine 790256-25-6P, 2,7-Bis[N-phenyl-N-[p-

(tricyanoethenyl)phenyl]amino]fluorene 790256-27-8P,  
9-(Dicyanomethylene)-2,7-bis[[N-phenyl-N-(4-  
tricyanoethenyl)]amino]fluorene 790256-28-9P,  
1,3-Bis[[4-(tricyanoethenyl)phenyl]phenylamino]-5-  
(diphenylamino)benzene 790256-29-0P, 1,3,5-Tris[[4-  
(tricyanoethenyl)phenyl]phenylamino]benzene 790256-30-3P,  
Tris[4-[N-[4-(tricyanoethenyl)phenyl]phenylamino]phenyl]amine  
790256-31-4P, 2-(Diphenylamino)-2',7,7'-tris[N-phenyl-[4-  
(tricyanoethenyl)phenyl]amino]-9,9'-spirofluorene 790256-32-5P,  
2,2',7,7'-Tetrakis[N-phenyl-[4-(tricyanoethenyl)phenyl]amino]-9,9'-  
spirofluorene 790256-34-7P, 2,2-Bis[4-[N-phenyl-N-[p-  
(tricyanoethenyl)phenyl]amino]phenyl]propane 790256-35-8P,  
1,3-Bis[N-methyl-p-(tricyanoethenyl)anilino]-5-(N-  
methylanilino)benzene 790256-36-9P, 1,3,5-Tris[N-methyl-p-  
(tricyanoethenyl)anilino]benzene

RL: IMF (Industrial manufacture); TEM (Technical or engineered  
material use); PREP (Preparation); USES (Uses)

(colorant; organic colorants with metallic gloss for inks and  
coatings with good storage stability)

IT 100-61-8, N-Methylaniline, reactions 122-39-4, Diphenylamine,  
reactions 626-39-1, 1,3,5-Tribromobenzene 670-54-2,  
Tetracyanoethylene, reactions 15546-43-7, N,N,N',N'-  
Tetraphenylbenzidine 105389-36-4 113933-91-8,  
2,7-Bis(diphenylamino)fluorene 126717-23-5,  
1,3,5-Tris(diphenylamino)benzene 128055-74-3, 2,2',7,7'-Tetrabromo-  
9,9'-spirofluorene 790256-26-7, 9-(Dicyanomethylene)-2,7-  
bis(diphenylamino)fluorene 790256-33-6, 2,2-Bis[4-  
(diphenylamino)phenyl]propane

RL: RCT (Reactant); RACT (Reactant or reagent)

(for colorant preparation; organic colorants with metallic gloss for inks  
and coatings with good storage stability)

L28 ANSWER 16 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:801715 HCAPLUS Full-text

DOCUMENT NUMBER: 141:304040

TITLE: Organic EL device with high emission efficiency  
and long service life, its manufacture, and  
organic EL panel assembled with same

INVENTOR(S): Koshiishi, Akira; Nada, Naoshi; Tomioka, Satoshi

PATENT ASSIGNEE(S): Sony Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE         |
|---------------|------|----------|-----------------|--------------|
| -----         | ---- | -----    | -----           |              |
| JP 2004273163 | A    | 20040930 | JP 2003-59013   | 200303<br>05 |

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PRIORITY APPLN. INFO.: JP 2003-59013

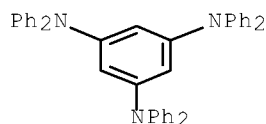
200303  
05

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AB The organic EL device consists of  $\geq 1$  layers of organic layers involving light-  
emitting layers (LEL) between a pair of electrode layers,  $\geq 1$  of which are

transparent electrodes, wherein an electron transfer-controlling layer (ETCL) which restricts the flow of electrons to LEL, preferably comprising  $\alpha$ -NPD, TPD, m-TPD, 1-TNATA, p-PMTDATA, TFATA, TCATA, p-DPA-TDAB, MTDAPB, p-BPD, PFFA or FFD, is provided between the electrode layers, hence only electrons which contribute to light emission are injected to LEL from ETCL, thereby improving emission efficiency, suppressing elec. power consumption, and achieving long service life. Preferably, an electron-transporting layer (ETL) is formed between the electrode layer as a cathode and LEL, ETCL is formed between the ETL and the LEL, and the energy level of LUMO of ETCL is lower than that of ETL. The organic EL panel contains a plurality of the organic EL devices arranged on a substrate.

IT 126717-23-5, 1,3,5-Tris(diphenylamino)benzene  
RL: DEV (Device component use); USES (Uses)  
(p-DPA-TDAB, electron transfer-controlling layer; manufacture of organic EL device with high emission efficiency for organic EL panel)  
RN 126717-23-5 HCAPLUS  
CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



IC ICM H05B033-22  
ICS H05B033-10; H05B033-14  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
IT 126717-23-5, 1,3,5-Tris(diphenylamino)benzene  
RL: DEV (Device component use); USES (Uses)  
(p-DPA-TDAB, electron transfer-controlling layer; manufacture of organic EL device with high emission efficiency for organic EL panel)

L28 ANSWER 17 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:459223 HCAPLUS Full-text

DOCUMENT NUMBER: 141:173778

TITLE: A Bindschedler's Green-Based Arylamine: Its Polycations with High-Spin Multiplicity

AUTHOR(S): Ito, Akihiro; Ino, Haruhiro; Matsui, Yuki; Hirao, Yasukazu; Tanaka, Kazuyoshi; Kanemoto, Katsuichi; Kato, Tatsuhisa

CORPORATE SOURCE: Department of Molecular Engineering, Graduate School of Engineering, Kyoto University, Kyoto, 615-8510, Japan

SOURCE: Journal of Physical Chemistry A (2004), 108(26), 5715-5720

CODEN: JPFAFH; ISSN: 1089-5639

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 141:173778

AB Intramol. high-spin correlation in a series of the successively generated polycationic species of Bindschedler's green-based arylamine, N,N,N',N',N'',N''-hexakis[4-(dimethylamino)phenyl]-1,3,5- benzenetriamine (1), has been investigated by continuous wave (CW) and pulsed EPR spectroscopy. Cyclic voltammetry shows multiredox behavior of 1 that can be reversibly

oxidized from monocation to hexacation. Depending on the quantity of the added oxidant, the characteristic EPR spectra are observed for polycations of 1 in frozen solution. Unequivocal determination of the spin state at each oxidation stage of 1 is given by a pulsed EPR technique, i.e., electron spin transient nutation spectroscopy.

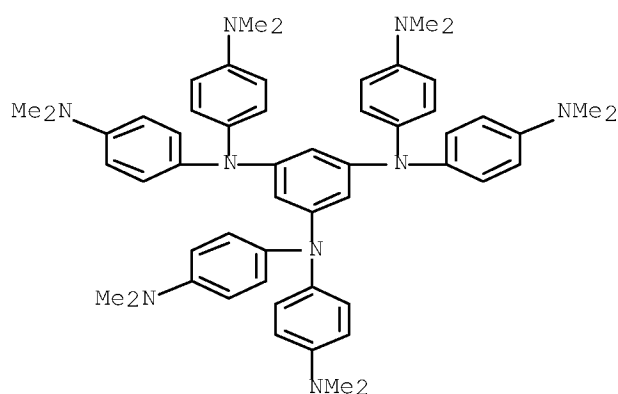
IT 733055-08-8P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)

(ESR and cyclic voltammetry study on polycations with high-spin multiplicity from Bindschedler's green-based arylamine)

RN 733055-08-8 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis[4-(dimethylamino)phenyl]- (CA INDEX NAME)



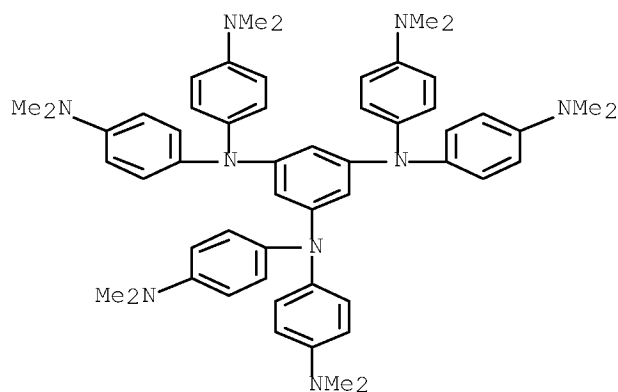
IT 733055-09-9

RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)

(ESR and cyclic voltammetry study on polycations with high-spin multiplicity from Bindschedler's green-based arylamine)

RN 733055-09-9 HCAPLUS

CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N''-hexakis[4-(dimethylamino)phenyl]-, radical ion(1+) (9CI) (CA INDEX NAME)



CC 22-8 (Physical Organic Chemistry)  
Section cross-reference(s): 77  
IT 733055-08-8P  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
(ESR and cyclic voltammetry study on polycations with high-spin multiplicity from Bindschedler's green-based arylamine)  
IT 733055-09-9 733055-10-2 733055-11-3 733055-12-4  
733055-13-5 733055-14-6  
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)  
(ESR and cyclic voltammetry study on polycations with high-spin multiplicity from Bindschedler's green-based arylamine)  
REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 18 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2004:252470 HCAPLUS Full-text  
DOCUMENT NUMBER: 140:287163  
TITLE: Process for preparation of arylamines  
INVENTOR(S): Kubo, Shinji; Shintou, Taichi; Aoki, Hidenori  
PATENT ASSIGNEE(S): Sankio Chemical Co., Ltd., Japan  
SOURCE: PCT Int. Appl., 44 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------|------|----------|-----------------|----------|
| -----         | ---- | -----    | -----           |          |
| WO 2004024670 | A1   | 20040325 | WO 2003-JP11510 | 20030909 |

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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

|               |    |          |                |          |
|---------------|----|----------|----------------|----------|
| AU 2003264400 | A1 | 20040430 | AU 2003-264400 | 20030909 |
|---------------|----|----------|----------------|----------|

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|            |   |          |              |          |
|------------|---|----------|--------------|----------|
| GB 2408979 | A | 20050615 | GB 2005-4952 | 20030909 |
|------------|---|----------|--------------|----------|

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September 24, 2008

10/580,052

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GB 2408979  
US 20060069287

B 20060308  
A1 20060330

US 2005-527064

200503  
09

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US 7273953  
PRIORITY APPLN. INFO.:

B2 20070925

JP 2002-264202

A

200209  
10

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WO 2003-JP11510

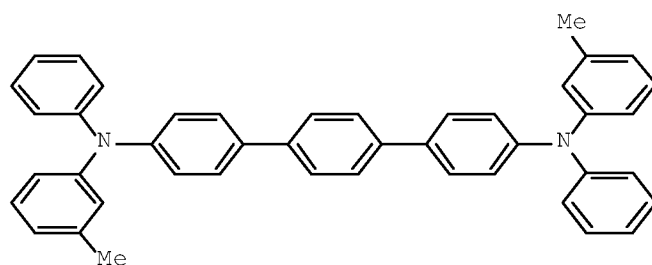
W

200309  
09

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OTHER SOURCE(S):  
GI

CASREACT 140:287163



I

AB This invention pertains to a method for producing arylamines, which comprises reacting an aromatic halogen compound with an aromatic amine in the presence of an organic salt selected among specific pyridinium salts, imidazolium salts, and quaternary onium salts, a copper catalyst, and a base. For example, N-(3-methylphenyl)-N-phenylamine was reacted with 4,4'-diiodoterphenyl in toluene in the presence of KOH, CuCl, and Bu4PBr to give the amine I (94.0%). By the process, a high-purity arylamine, especially triarylamine or diarylamine, can be produced at low cost.

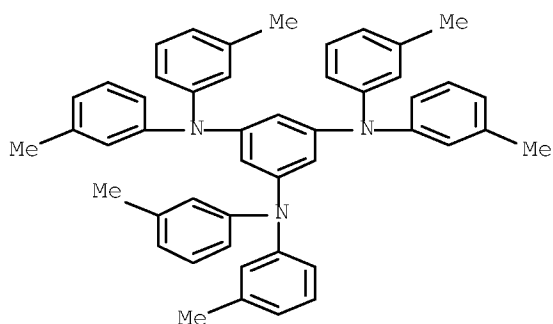
IT 168091-66-5P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(preparation of arylamines by coupling reaction)

RN 168091-66-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(3-methylphenyl)-  
(CA INDEX NAME)



IC ICM C07C211-54  
ICS C07C209-10  
CC 25-4 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
Section cross-reference(s): 45  
IT 1150-62-5P 4316-54-5P 32228-99-2P 78774-91-1P 124729-98-2P  
147850-54-2P 154576-20-2P ~~168091-66-5P~~ 194296-19-0P  
675583-36-5P 675583-37-6P 675583-38-7P 675583-39-8P  
675583-40-1P 675583-41-2P 675583-42-3P 675583-43-4P  
675583-44-5P 675583-45-6P 675583-46-7P  
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP  
(Preparation)  
(preparation of arylamines by coupling reaction)  
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L28 ANSWER 19 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2003:609758 HCAPLUS Full-text  
DOCUMENT NUMBER: 139:171099  
TITLE: Organic light-emitting devices employing  
phosphorescent material doped into the  
electron-transporting layer  
INVENTOR(S): Yamazaki, Hiroko; Tokuda, Atsushi; Tsutsui,  
Tetsuo  
PATENT ASSIGNEE(S): Semiconductor Energy Laboratory Co., Ltd., USA  
SOURCE: U.S. Pat. Appl. Publ., 27 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE         |
|----------------|------|----------|-----------------|--------------|
| -----          | ---- | -----    | -----           |              |
| US 20030146443 | A1   | 20030807 | US 2002-304410  | 200211<br>26 |
|                |      |          | <--             |              |
| US 6734457     | B2   | 20040511 |                 |              |
| JP 2003229275  | A    | 20030815 | JP 2002-341774  | 200211<br>26 |
|                |      |          | <--             |              |
| JP 3759925     | B2   | 20060329 |                 |              |

|                        |    |          |                |                    |
|------------------------|----|----------|----------------|--------------------|
| US 20040124425         | A1 | 20040701 | US 2003-737569 | 200312<br>16       |
|                        |    |          | <--            |                    |
| JP 2005101002          | A  | 20050414 | JP 2004-360371 | 200412<br>13       |
|                        |    |          | <--            |                    |
| US 20080143254         | A1 | 20080619 | US 2007-976781 | 200710<br>29       |
|                        |    |          | <--            |                    |
| PRIORITY APPLN. INFO.: |    |          | JP 2001-360500 | A<br>200111<br>27  |
|                        |    |          | <--            |                    |
|                        |    |          | JP 2002-341774 | A3<br>200211<br>26 |
|                        |    |          | <--            |                    |
|                        |    |          | US 2002-304410 | A1<br>200211<br>26 |
|                        |    |          | <--            |                    |
|                        |    |          | US 2003-737569 | A1<br>200312<br>16 |
|                        |    |          | <--            |                    |

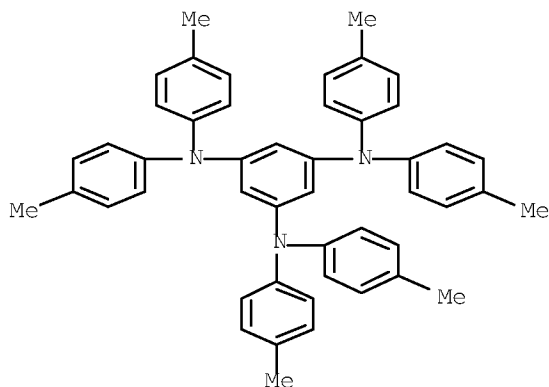
AB Light-emitting devices are described which comprise an anode, an optional hole-injection layer in contact with the anode, an organic compound film, an optional electron-injection layer in contact with a cathode, and a cathode, where the organic compound film comprises a hole-transporting layer containing a hole-transporting material; and an electron-transporting layer in contact with the hole-transporting layer and containing an electron-transporting material, where a light-emitting material capable of emitting light from a triplet excited state is added in the electron transporting layer.

IT 134257-64-0 168091-66-5 573968-20-4

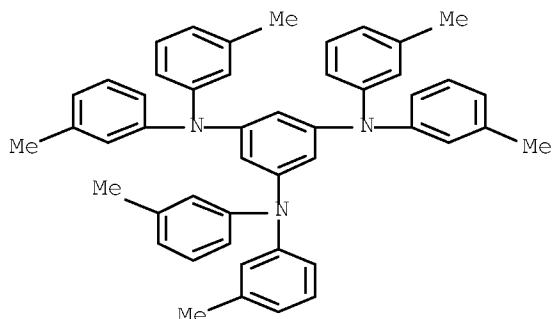
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(hole-transporting layer; organic light-emitting devices employing phosphorescent material doped in electron-transporting layer)

RN 134257-64-0 HCAPLUS

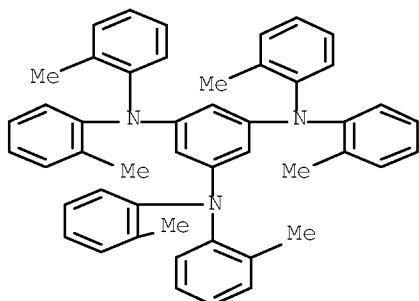
CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-methylphenyl)-  
(CA INDEX NAME)



RN 168091-66-5 HCAPLUS  
CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(3-methylphenyl)-  
(CA INDEX NAME)



RN 573968-20-4 HCAPLUS  
CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(2-methylphenyl)-  
(CA INDEX NAME)



IC ICM H01L027-15  
INCL 257080000  
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 22, 76, 78  
IT 134257-64-0 148044-07-9 163815-23-4 168091-66-5  
573968-20-4  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(hole-transporting layer; organic light-emitting devices employing phosphorescent material doped in electron-transporting layer)  
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 20 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2002:237137 HCAPLUS Full-text  
DOCUMENT NUMBER: 136:270534  
TITLE: Electrophotographic photoreceptor  
INVENTOR(S): Miyamoto, Eiichi; Inagaki, Yoshio; Fukunaga, Hideaki

September 24, 2008

10/580,052

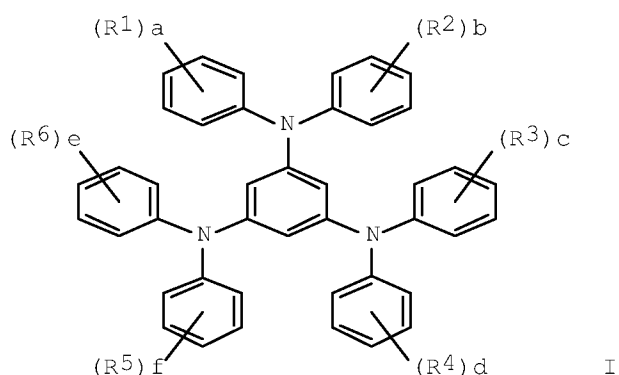
37

PATENT ASSIGNEE(S): Kyocera Mita Industrial Co., Ltd., Japan;  
 Kyocera Corp.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

| PATENT NO.<br>-----    | KIND<br>---- | DATE<br>----- | APPLICATION NO.<br>----- | DATE              |
|------------------------|--------------|---------------|--------------------------|-------------------|
| JP 2002091033          | A            | 20020327      | JP 2000-281052           | 200009<br>18      |
| US 20020051918         | A1           | 20020502      | <--<br>US 2001-910916    | 200107<br>24      |
| US 6489071             | B2           | 20021203      | <--<br>JP 2000-224240    | A<br>200007<br>25 |
| PRIORITY APPLN. INFO.: |              |               | <--<br>JP 2000-243150    | A<br>200008<br>10 |
|                        |              |               | <--<br>JP 2000-250409    | A<br>200008<br>22 |
|                        |              |               | <--<br>JP 2000-281051    | A<br>200009<br>18 |
|                        |              |               | <--<br>JP 2000-281052    | A<br>200009<br>18 |
|                        |              |               | <--<br>JP 2000-311421    | A<br>200010<br>12 |
|                        |              |               | <--<br>JP 2000-355340    | A<br>200011<br>22 |
|                        |              |               | <--<br>JP 2000-366431    | A<br>200012<br>01 |
|                        |              |               | <--<br>JP 2001-20876     | A<br>200101<br>30 |
|                        |              |               | <--<br>JP 2001-20877     | A<br>200101<br>30 |

OTHER SOURCE(S) : MARPAT 136:270534  
GI

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AB The invention relates to an electrophotog. photoreceptor which hardly forms cracks during the usage and storage. The electrophotog. photoreceptor comprises an organic photosensitive layer and an inorg. surface protective layer formed on a support, wherein the surface of photosensitive layer contacting the surface protective layer contains a triaminobenzene derivative represented by I (R1-6 = H, halo, alkyl, alkoxy, aryl; and a-f = 1-5). The surface protective layer contains an inorg. substance such as a-SiC, a-SiN, etc.

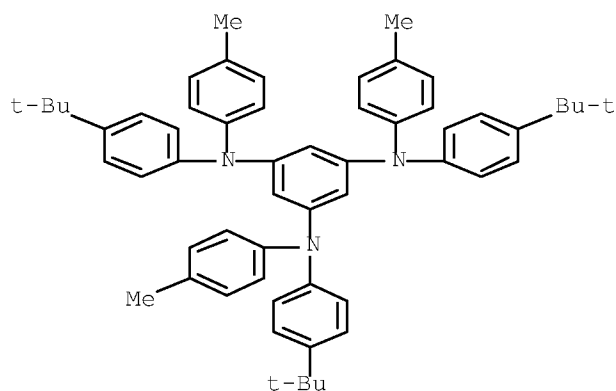
IT 393586-96-4 393586-97-5

RL: DEV (Device component use); USES (Uses)

(electrophotog. photoreceptor triaminobenzene derivative)

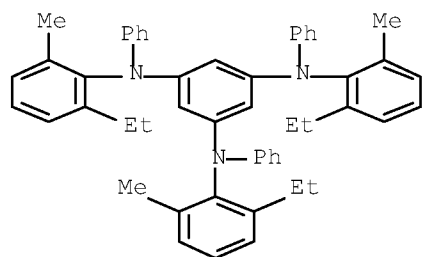
RN 393586-96-4 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris[4-(1,1-dimethylethyl)phenyl]-  
N1,N3,N5-tris(4-methylphenyl)- (CA INDEX NAME)



RN 393586-97-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(2-ethyl-6-methylphenyl)-  
N1,N3,N5-triphenyl- (CA INDEX NAME)



IC ICM G03G005-06  
ICS G03G005-147  
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 25  
IT 393586-96-4 393586-97-5 393586-98-6  
RL: DEV (Device component use); USES (Uses)  
(electrophotog. photoreceptor triaminobenzene derivative)

L28 ANSWER 21 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2002:87279 HCAPLUS Full-text  
DOCUMENT NUMBER: 136:142582  
TITLE: Electrosensitive material  
INVENTOR(S): Miyamoto, Eiichi; Fukunaga, Hideaki; Inagaki,  
Yoshio  
PATENT ASSIGNEE(S): Kyocera Mita Corporation, Japan; Kyocera  
Corporation  
SOURCE: Eur. Pat. Appl., 246 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

| PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE         |
|--|------|----------|-----------------|--------------|
| EP 1176469   | A1   | 20020130 | EP 2001-306364  | 200107<br>25 |
| <--  |      |          |                 |              |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,<br>PT, IE, SI, LT, LV, FI, RO |      |          |                 |              |
| JP 2002040689  | A    | 20020206 | JP 2000-224240  | 200007<br>25 |
| <--  |      |          |                 |              |
| JP 2002055467  | A    | 20020220 | JP 2000-243150  | 200008<br>10 |
| <--  |      |          |                 |              |
| JP 2002062676  | A    | 20020228 | JP 2000-250409  | 200008<br>22 |
| <--  |      |          |                 |              |
| JP 2002091031  | A    | 20020327 | JP 2000-281051  | 200009<br>18 |

September 24, 2008

10/580,052

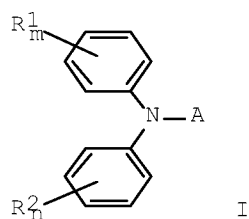
40

|                        |   |          |                |                |
|------------------------|---|----------|----------------|----------------|
| JP 2002123011          | A | 20020426 | JP 2000-311421 | 200010<br>12   |
| JP 2002156768          | A | 20020531 | JP 2000-355340 | 200011<br>22   |
| JP 2002169313          | A | 20020614 | JP 2000-366431 | 200012<br>01   |
| JP 2002229233          | A | 20020814 | JP 2001-20876  | 200101<br>30   |
| JP 2002229232          | A | 20020814 | JP 2001-20877  | 200101<br>30   |
| PRIORITY APPLN. INFO.: |   |          | JP 2000-224240 | A 200007<br>25 |
|                        |   |          | JP 2000-243150 | A 200008<br>10 |
|                        |   |          | JP 2000-250409 | A 200008<br>22 |
|                        |   |          | JP 2000-281051 | A 200009<br>18 |
|                        |   |          | JP 2000-311421 | A 200010<br>12 |
|                        |   |          | JP 2000-355340 | A 200011<br>22 |
|                        |   |          | JP 2000-366431 | A 200012<br>01 |
|                        |   |          | JP 2001-20876  | A 200101<br>30 |
|                        |   |          | JP 2001-20877  | A 200101<br>30 |

OTHER SOURCE(S):  
GI

MARPAT 136:142582





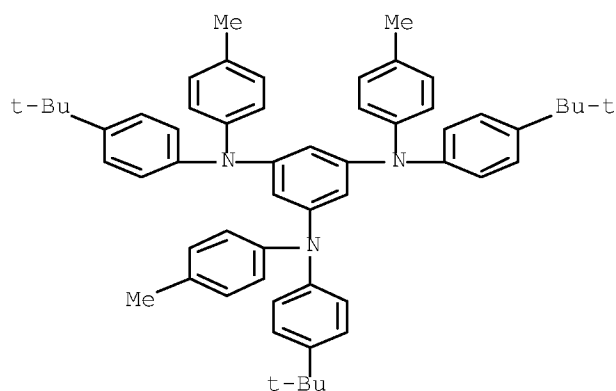
AB The invention disclosed an electrophotosensitive material comprising an organic photosensitive layer and an inorg. surface protective layer, wherein at least the outermost part of the organic photosensitive layer contains a diphenylamine compound I (A is a group which can jointly form a  $\pi$ -electron conjugated system with the two Ph groups in the formula; R1 and R2 each represent an H atom, halogen atom, alkyl group, alkoxy group, etc., and R1 and R2 may form a condensed ring with the Ph group; m, n = 0-5). The electrophotosensitive material has excellent durability because compound I functions as a binder for combining the organic photosensitive layer with the inorg. surface protective layer so that the surface protective layer is less prone to suffer cracks or delamination.

IT 393586-96-4 393586-97-5

RL: TEM (Technical or engineered material use); USES (Uses)  
(pos.-hole transport compound in electrophotog. material)

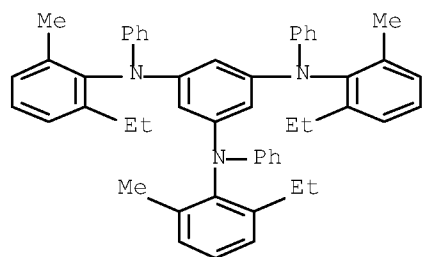
RN 393586-96-4 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris[4-(1,1-dimethylethyl)phenyl]-  
N1,N3,N5-tris(4-methylphenyl)- (CA INDEX NAME)



RN 393586-97-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(2-ethyl-6-methylphenyl)-  
N1,N3,N5-triphenyl- (CA INDEX NAME)



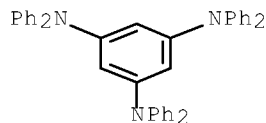
IC ICM G03G005-147  
ICS G03G005-06  
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
IT 65181-78-4 73276-70-7 89505-08-8 105465-13-2 106614-59-9  
119344-18-2 119586-43-5 124591-08-8 132037-07-1 132571-92-7  
132761-17-2 142017-30-9 151026-65-2 151259-33-5 159530-26-4  
167377-13-1 167377-38-0 168091-65-4 169509-14-2 170021-51-9  
173923-36-9 173923-37-0 173923-50-7 177407-52-2 179063-40-2  
179063-41-3 179063-46-8 179063-49-1 179550-47-1 208042-91-5  
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393586-79-3 393586-80-6 393586-81-7 393586-82-8 393586-83-9  
393586-84-0 393586-85-1 393586-86-2 393586-87-3 393586-88-4  
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393586-94-2 393586-95-3 ~~393586-96-4~~ ~~393586-97-5~~  
393586-98-6 393586-99-7 393587-00-3 393587-01-4 393587-05-8  
393587-06-9  
RL: TEM (Technical or engineered material use); USES (Uses)  
(pos.-hole transport compound in electrophotog. material)  
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L28 ANSWER 22 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2002:8812 HCAPLUS Full-text  
DOCUMENT NUMBER: 136:191337  
TITLE: Durability and characteristics of organic EL device using amorphous materials as hole transporting materials  
AUTHOR(S): Oh, Se Young; Lee, Chang Ho; Kim, Seung Wook  
CORPORATE SOURCE: Department of Chemical Engineering, Sogang University, Seoul, 121-742, S. Korea  
SOURCE: Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (2001), 371, 423-426  
CODEN: MCLCE9; ISSN: 1058-725X  
PUBLISHER: Gordon & Breach Science Publishers  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Amorphous mol. materials such as 1,3,5-tris(4-chlorophenyl phenylamino)benzene, p-ClTDAB and p-BrTDAB were synthesized and then organic electroluminescent (EL) devices using the amorphous compds. as hole transporting materials were fabricated. ITO/p-XTDAB (X=Cl or Br)/Alq3/Al device emitted green light with the brightness of 1300 cd/m<sup>2</sup>. Especially, the durability and EL performance were improved by p-XTDAB compared to TDAB.  
IT ~~126717-23-5~~  
RL: DEV (Device component use); PRP (Properties); USES (Uses)

(TDAB; durability and characteristics of organic EL device using amorphous materials as hole transporting materials)

RN 126717-23-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



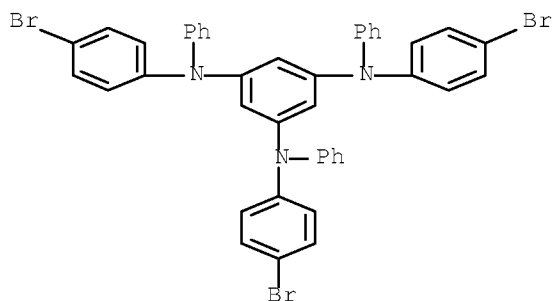
IT 177659-53-9

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(p-BrTDAB; durability and characteristics of organic EL device using amorphous materials as hole transporting materials)

RN 177659-53-9 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-bromophenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



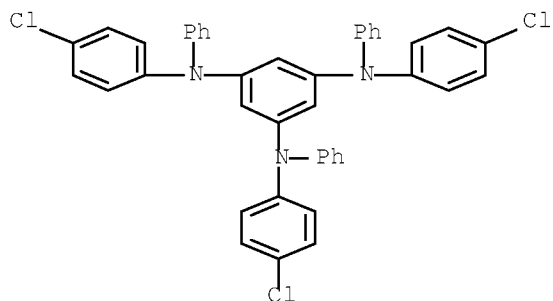
IT 177659-52-8

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(p-ClTDAB; durability and characteristics of organic EL device using amorphous materials as hole transporting materials)

RN 177659-52-8 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-chlorophenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
IT 126717-23-5  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(TDAB; durability and characteristics of organic EL device using amorphous materials as hole transporting materials)  
IT 177659-53-9  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(p-BrTDAB; durability and characteristics of organic EL device using amorphous materials as hole transporting materials)  
IT 177659-52-8  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(p-ClTDAB; durability and characteristics of organic EL device using amorphous materials as hole transporting materials)  
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 23 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:924914 HCAPLUS Full-text

DOCUMENT NUMBER: 136:158432

TITLE: Structural effects of TDAB amorphous hole transporting materials on performance of organic EL device

AUTHOR(S): Lee, Chang Ho; Kim, Seung Wook; Oh, Se Young

CORPORATE SOURCE: Department of Chemical Engineering, Sogang University, Seoul, 121-742, S. Korea

SOURCE: Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (2001), 370, 53-56  
CODEN: MCLCE9; ISSN: 1058-725X

PUBLISHER: Gordon & Breach Science Publishers

DOCUMENT TYPE: Journal

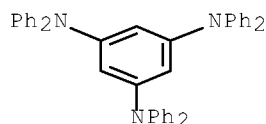
LANGUAGE: English

AB For the fabrication of high stable organic electroluminescent device, amorphous mol. materials such as 1,3,5-tris(diphenylamino)benzene (TDAB), 1,3,5-tris(4-chlorophenyl[phenyl]amino)benzene (p-ClTDAB), p-BrTDAB, and p-MeOTDAB were synthesized as hole transporting materials and studied ITO/p-XTDAB (X = Br, Cl, MeO)/Alq3/Al device emitted green light. Organic EL device consisting of ITO/p-BrTDAB/Alq3/Al showed high EL intensity. The durability and EL performance of organic EL device using the amorphous hole transporting material were studied.

IT 126717-23-5, 1,3,5-Tris(diphenylamino)benzene  
177659-52-8, 1,3,5-Tris(4-chlorophenyl[phenyl]amino)benzene  
177659-53-9, 1,3,5-Tris(4-bromophenyl[phenyl]amino)benzene  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(structural effects of amorphous hole transporting material on performance of organic electroluminescent device)

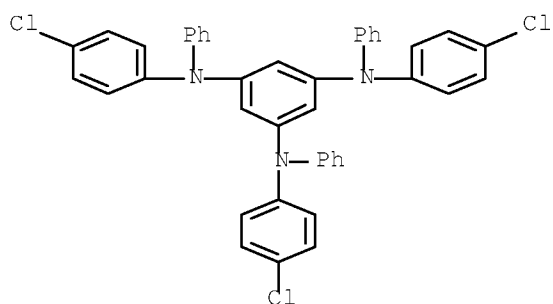
RN 126717-23-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



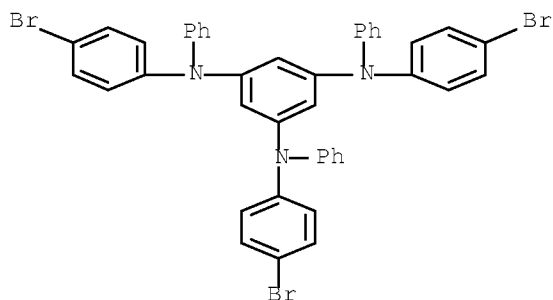
RN 177659-52-8 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-chlorophenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



RN 177659-53-9 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-bromophenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22, 76

IT 126717-23-5, 1,3,5-Tris(diphenylamino)benzene

177659-52-8, 1,3,5-Tris(4-chlorophenyl[phenyl]amino)benzene

177659-53-9, 1,3,5-Tris(4-bromophenyl[phenyl]amino)benzene

395083-18-8

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(structural effects of amorphous hole transporting material on performance of organic electroluminescent device)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 24 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:403128 HCAPLUS Full-text

DOCUMENT NUMBER: 135:20079

TITLE: Transition metal complex catalysts and trimerization of ethylene using them

INVENTOR(S): Murakita, Shigeyuki; Yamamoto, Toshihide; Okada, Hisanori; Yoshida, Osamu

PATENT ASSIGNEE(S): Tosoh Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.

DOCUMENT TYPE: CODEN: JKXXAF  
LANGUAGE: Patent  
FAMILY ACC. NUM. COUNT: 1 Japanese  
PATENT INFORMATION:

| PATENT NO.    | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------|------|----------|-----------------|----------|
| JP 2001149788 | A    | 20010605 | JP 1999-339889  | 19991130 |

PRIORITY APPLN. INFO.: <-- JP 1999-339889 19991130

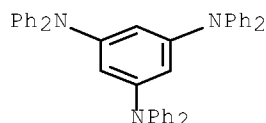
OTHER SOURCE(S): MARPAT 135:20079

AB Ethylene is trimerized in the presence of (A) transition metal complexes coordinated with amino-substituted benzene derivative ligands and optionally (B) tertiary aromatic amines and/or N-containing heterocyclic compds. Thus, trimerization of ethylene at 80° for 30 min in the presence of 1,3,5-tris(diphenylamino)benzenechromium tricarbonyl(0), in which the tris(diphenylamino)benzene ligand is facially coordinated to Cr, under radiation of light to give 1-hexene with selectivity 98.5%.

IT 126717-23-5, 1,3,5-Tris(diphenylamino)benzene  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(transition metal complex catalysts for trimerization of ethylene for preparation of 1-hexene in high selectivity)

RN 126717-23-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



IC ICM B01J031-22

ICS C07B061-00; C07C002-34; C07C011-107; C08F004-69

CC 35-2 (Chemistry of Synthetic High Polymers)

IT 74-85-1, Ethylene, reactions 13007-92-6, Chromium hexacarbonyl  
126717-23-5, 1,3,5-Tris(diphenylamino)benzene

RL: RCT (Reactant); RACT (Reactant or reagent)  
(transition metal complex catalysts for trimerization of ethylene for preparation of 1-hexene in high selectivity)

L28 ANSWER 25 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:462278 HCAPLUS Full-text

DOCUMENT NUMBER: 134:116414

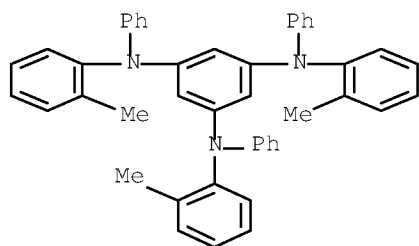
TITLE: Electronic structure of starburst molecules and their interfaces with ITO studied by UV photoemission

AUTHOR(S): Ishii, Hisao; Imai, Toshiaki; Morikawa, Eizi; Ito, Eisuke; Hasegawa, Shinji; Okudaira, Koji; Kamiya; Ueno, Nobuo; Shirota, Yasuhiko; Seki, Kazuhiko

CORPORATE SOURCE: Dep. Chem., Graduate School of Science, Nagoya Univ., Chikusa-ku Nagoya, Japan  
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1999), 3797(Organic Light-Emitting Materials and Devices III), 375-382  
CODEN: PSISDG; ISSN: 0277-786X  
PUBLISHER: SPIE-The International Society for Optical Engineering  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB UV photoemission spectroscopy (UPS) was used to study electronic structures of starburst mols. derived from triphenylamine and their interfaces with indium tin oxide (ITO). The compds. studied were 1,3,5-tris(2-methylphenylphenylamino)benzene (o-MTDA), 4,4',4''-tris(3-methylphenylphenylamino)triphenylamine (m-MTDATA), 1,3,5-tris[4-(3-methylphenylphenylamino)phenyl]benzene (m-MTDAPB), and 1,3,5-tris[N-(4-diphenylaminophenyl)phenylamino]benzene (p-DPA-TDAB). These compds. have good thermal stability and hole transport properties due to their amorphous character and are of interest for use in electroluminescent devices. The observed ionization potential is 5.4 plus or minus 0.1 eV, 5.0 plus or minus 0.1 eV, 5.45 plus or minus 0.05 eV, and 5.15 plus or minus 0.05 eV, for o-MTDA, m-MTDATA, m-MTDAPB, and p-DPA-TDAB, resp. The whole valence region of UPS spectra was measured using synchrotron radiation. The bulk electronic structure of these mols. was correlated with MOPAC MO calcs. At ITO interfaces with the starburst triphenylamines, a vacuum level shift was observed, indicating that the traditional model with an assumption of a common vacuum level at organic/metal interfaces is not valid even in the case of ITO electrode. The direction of the shifts was neg., i.e., the vacuum level of the starburst mols. is below that of the ITO electrode. The magnitude of the shift was dependent on the surface cleanliness of the ITO substrate.

IT 142143-88-2, 1,3,5-Tris(2-methylphenylphenylamino)benzene  
RL: PRP (Properties)  
(electronic structure of triphenylamine starburst mols. and alignment with ITO interface studied by UV photoemission spectroscopy)  
RN 142143-88-2 HCAPLUS  
CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(2-methylphenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)

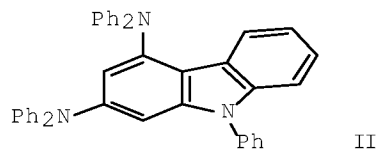
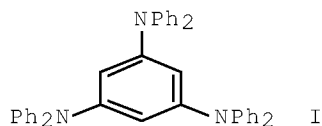


CC 36-5 (Physical Properties of Synthetic High Polymers)  
Section cross-reference(s): 65, 76  
IT 124729-98-2, 4,4',4''-Tris(3-methylphenylphenylamino)triphenylamine  
142143-88-2, 1,3,5-Tris(2-methylphenylphenylamino)benzene  
153521-90-5, 1,3,5-Tris[N-(4-diphenylaminophenyl)phenylamino]benzene  
161581-07-3, 1,3,5-Tris[4-(3-methylphenylphenylamino)phenyl]benzene  
RL: PRP (Properties)

(electronic structure of triphenylamine starburst mols. and alignment with ITO interface studied by UV photoemission spectroscopy)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 26 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2000:129529 HCAPLUS Full-text  
DOCUMENT NUMBER: 132:279083  
TITLE: Photochemical reaction of 1,3,5-tris(diphenylamino)benzene  
AUTHOR(S): Moriwaki, Kazuyuki; Yoshikawa, Satoru; Kotani, Yoshiko; Ishida, Akito; Shirota, Yasuhiko  
CORPORATE SOURCE: Department of Applied Chemistry, Faculty of Engineering, Osaka University, Suita, 565-0871, Japan  
SOURCE: Journal of Photopolymer Science and Technology (1999), 12(5), 777-780  
CODEN: JSTEOW; ISSN: 0914-9244  
PUBLISHER: Technical Association of Photopolymers, Japan  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 132:279083  
GI



AB Photochem. reaction of a new aromatic amine with dual reaction sites for ring closure, 1,3,5-tris(diphenylamino)benzene I, was investigated to clarify its photochem. reaction course and the effect of oxygen on the photochem. reaction. It was found that I undergoes photocyclization in solution in the absence or presence of oxygen to produce N-phenyl-2,4-bis(diphenylamino)carbazole II. The product anal. and the result of laser flash photolysis indicate that the reaction mechanism for the photocyclization of I is different between the deaerated and oxygen-saturated systems. Photocyclization reaction of I in the absence of oxygen takes place via the electronically excited triplet state of I, followed by the formation of the dihydrocarbazole. In the presence of oxygen, the dihydrocarbazole radical cation is suggested as an intermediate in the photocyclization.

IT 126717-23-5P

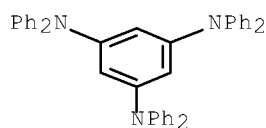
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and photocyclization of tris(diphenylamino)benzene to give a bis(diphenylamino)carbazole derivative)

RN 126717-23-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)

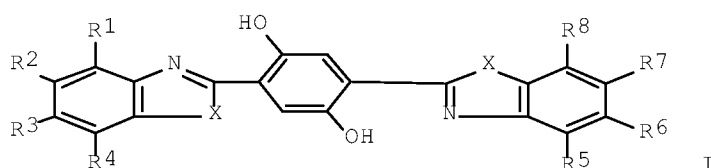




CC 27-11 (Heterocyclic Compounds (One Hetero Atom))  
 Section cross-reference(s): 22  
 IT 126717-23-58  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);  
 RACT (Reactant or reagent)  
 (preparation and photocyclization of tris(diphenylamino)benzene to  
 give a bis(diphenylamino)carbazole derivative)  
 REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L28 ANSWER 27 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1999:638521 HCAPLUS Full-text  
 DOCUMENT NUMBER: 131:264582  
 TITLE: Red-emitting organic electroluminescent device  
 INVENTOR(S): Tanaka, Taizo; Toguchi, Itaru; Mori, Kenji  
 PATENT ASSIGNEE(S): NEC Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE              | APPLICATION NO.  | DATE              |
|------------------------|------|-------------------|------------------|-------------------|
| -----                  | ---- | -----             | -----            |                   |
| JP 11273866            | A    | 19991008          | JP 1998-92224    | 199803<br>23      |
|                        |      |                   | <--              |                   |
| JP 3092584             | B2   | 20000925          |                  |                   |
| TW 415157              | B    | 20001211          | TW 1999-88104485 | 199903<br>22      |
|                        |      |                   | <--              |                   |
| US 6630253             | B1   | 20031007          | US 1999-274963   | 199903<br>23      |
|                        |      |                   | <--              |                   |
| PRIORITY APPLN. INFO.: |      |                   | JP 1998-92224    | A<br>199803<br>23 |
|                        |      |                   | <--              |                   |
| OTHER SOURCE(S):       |      | MARPAT 131:264582 |                  |                   |
| GI                     |      |                   |                  |                   |



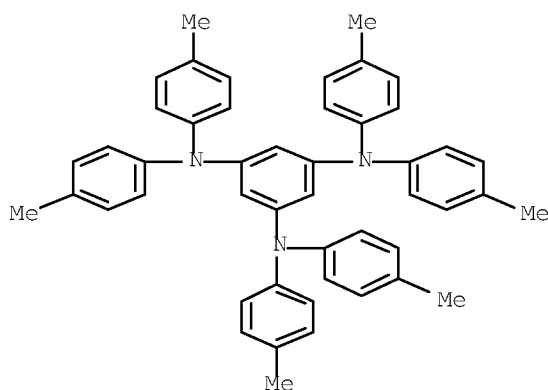
AB The invention relates to a red-emitting organic electroluminescent device, suited for use in making a flat light source and a display device, wherein the light-emitting layer comprises the compound represented by I [R1-8 = H, halo, OH, amino, etc.; two R's selected from R1-8 may be linked to form a ring; X = NH, O, and S].

IT 134257-64-0

RL: DEV (Device component use); USES (Uses)  
(red-emitting organic electroluminescent device)

RN 134257-64-0 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-methylphenyl)-  
(CA INDEX NAME)



IC ICM H05B033-14

ICS C09K011-06; G09F009-30

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74

IT 603-34-9 2085-33-8 4432-94-4 6940-30-3 14642-34-3  
15546-43-7 24601-13-6 33450-09-8 33450-10-1 33450-11-2  
123173-91-1 123847-85-8 134257-64-0 146162-54-1  
157077-42-4 157077-43-5 194214-31-8 194794-43-9 221453-37-8  
223735-62-4 227013-25-4 227013-26-5 227300-28-9 245041-41-2  
245041-42-3 245041-43-4 245041-44-5 245041-45-6 245041-46-7  
245041-47-8

RL: DEV (Device component use); USES (Uses)  
(red-emitting organic electroluminescent device)

L28 ANSWER 28 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:412898 HCAPLUS [Full-text](#)

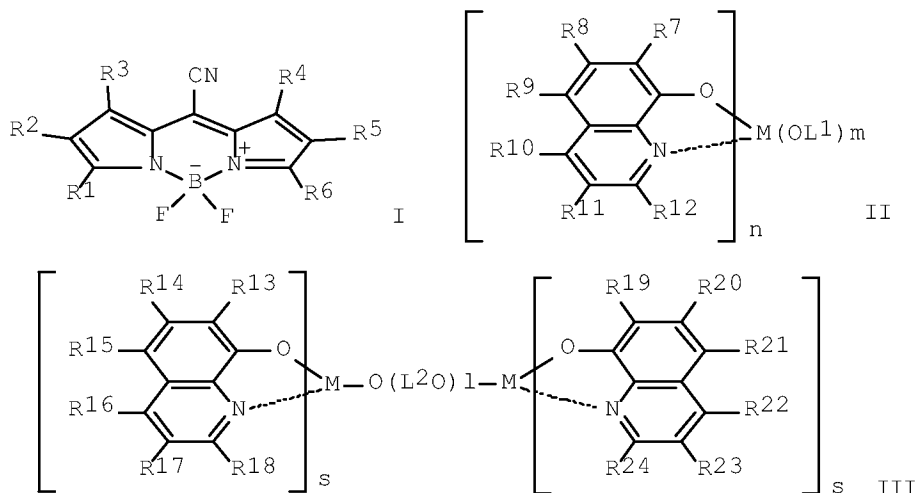
DOCUMENT NUMBER: 131:108713

TITLE: Organic electroluminescent device elements

INVENTOR(S): Suzuki, Toshiyasu; Tanaka, Taizo; Higashiguchi,

PATENT ASSIGNEE(S): Itaru; Oda, Atsushi  
 SOURCE: NEC Corp., Japan  
 Jpn. Kokai Tokkyo Koho, 23 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND              | DATE     | APPLICATION NO. | DATE         |
|------------------------|-------------------|----------|-----------------|--------------|
| -----                  | ----              | -----    | -----           |              |
| JP 11176572            | A                 | 19990702 | JP 1997-337260  | 199712<br>08 |
|                        |                   |          | <--             |              |
| JP 3011165             | B2                | 20000221 |                 |              |
| PRIORITY APPLN. INFO.: |                   |          | JP 1997-337260  | 199712<br>08 |
|                        |                   |          | <--             |              |
| OTHER SOURCE(S):       | MARPAT 131:108713 |          |                 |              |
| GI                     |                   |          |                 |              |



AB A phosphor of the elements comprises: a 5-cyanopromethane-BF<sub>2</sub> complex I; Ar<sub>1</sub>-3N; Ar<sub>1</sub>,2NYNAr<sub>3,4</sub>; (NAr<sub>1,2</sub>)(NAr<sub>3,4</sub>)(NAr<sub>5,6</sub>)Z [Ar<sub>1</sub>-6 = (substituted) aromatic hydrocarbon, (substituted) aromatic heterocyclic; Z = trivalent (substituted) aromatic hydrocarbon, trivalent (substituted) aromatic heterocyclic; any two of Ar<sub>1</sub>-6 may form a ring]; II [L<sub>1</sub> = (substituted) alkyl, (substituted) alkenyl, (substituted) cycloalkyl, (substituted) aromatic hydrocarbon, (substituted) aromatic heterocyclic; (substituted) aralkyl; n = 1-3; m = 0-2; M = (n+m) valent metal ion]; and/or III [R<sub>1</sub>-24 = H, halo, OH, (substituted) amino, nitro, cyano, (substituted) alkenyl, (substituted) cycloalkyl, (substituted) alkoxy, (substituted) aromatic hydrocarbon, (substituted) aromatic heterocyclic, (substituted) aralkyl, (substituted) aryloxy, (substituted) alkoxy carbonyl, carboxy; any two of R<sub>1</sub>-24 may form a ring; L<sub>2</sub> =

(substituted) alkylene, (substituted) alkenylene; (substituted) cycloalkylene, (substituted) arylene, (substituted) aralkylene; l = 0, 1; s = 1, 2; M = (s + 1) valent metal ion].

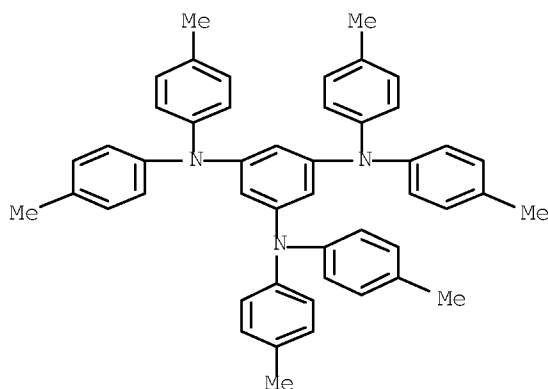
IT 134257-64-0

RL: PRP (Properties)

(organic electroluminescent device elements)

RN 134257-64-0 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-methylphenyl)-  
(CA INDEX NAME)



IC ICM H05B033-14

ICS C09K011-06

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 603-34-9, Triphenylamine 2085-33-8 4432-94-4 6940-30-3

14642-34-3 15546-43-7 21658-79-7 24601-13-6 123173-91-1

134257-64-0 146162-54-1 157077-42-4 157077-43-5

157410-23-6 194214-31-8 194794-43-9 214341-85-2 221453-37-8

223735-62-4 227013-25-4 227013-26-5 227300-28-9 230956-26-0

230956-27-1 230956-28-2 230956-29-3 230956-30-6 230956-31-7

RL: PRP (Properties)

(organic electroluminescent device elements)

L28 ANSWER 29 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:341108 HCAPLUS Full-text

DOCUMENT NUMBER: 131:51819

TITLE: Organic electroluminescent device containing perylene compound

INVENTOR(S): Higashiguchi, Itaru; Oda, Atsushi; Suzuki, Toshiyasu; Tanaka, Taizo

PATENT ASSIGNEE(S): NEC Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 26 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE |
|-------------|------|----------|-----------------|------|
| JP 11144870 | A    | 19990528 | JP 1997-304207  |      |

199711  
06

&lt;--

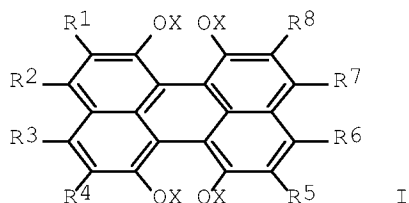
JP 3104223  
PRIORITY APPLN. INFO.:

B2 20001030

JP 1997-304207

199711  
06

&lt;--

OTHER SOURCE(S): MARPAT 131:51819  
GI

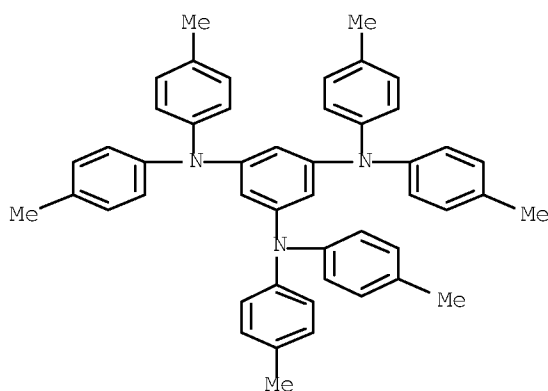
AB The device has a cathode and an anode sandwiching a light-emitting layer-containing organic thin film layer containing a perylene compound I (R1-8 = H, halogen, OH, NH2, NO2, cyano, alkyl, alkenyl, cycloalkyl, alkoxy, aromatic hydrocarbon, aromatic heterocyclic, aralkyl, aryloxy, alkoxycarbonyl, CO2H; R1-R8 may bond to form a ring; X = alkyl, alkenyl, cycloalkyl, aromatic hydrocarbon, aromatic heterocyclic, aralkyl). The device shows high luminance and high color purity.

IT 134257-64-08

RL: DEV (Device component use); IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)  
(red-light-emitting electroluminescent device containing perylene compound)

RN 134257-64-0 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-methylphenyl)-  
(CA INDEX NAME)



IC ICM H05B033-14  
ICS C09K011-06

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related

Properties)

Section cross-reference(s): 24, 25, 74

IT 603-34-9P 2085-33-8P 4432-94-4P 6940-30-3P 14642-34-3P  
15546-43-7P 24601-13-6P 123173-91-1P 123174-58-3P  
~~134257-64-0P~~ 146162-54-1P 157077-42-4P 157077-43-5P  
194214-31-8P 194794-43-9P 214341-85-2P 221453-37-8P  
223735-62-4P 227013-18-5P 227013-19-6P 227013-20-9P  
227013-21-0P 227013-22-1P 227013-23-2P 227013-24-3P  
227013-25-4P 227013-26-5P 227300-28-9P

RL: DEV (Device component use); IMF (Industrial manufacture); MOA  
(Modifier or additive use); PREP (Preparation); USES (Uses)

(red-light-emitting electroluminescent device containing perylene  
compound)

L28 ANSWER 30 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1998:725916 HCAPLUS Full-text

DOCUMENT NUMBER: 130:66107

TITLE: Substituent effects on the electrochemical  
oxidation of N,N',N''-triphenyl-1,3,5-  
triaminobenzenes

AUTHOR(S): Glatzhofer, Daniel T.; Morvant, Mark C.

CORPORATE SOURCE: Department of Chemistry and Biochemistry and  
Center for Electronic and Photonic Materials and  
Devices, The University of Oklahoma, Norman, OK,  
73019, USA

SOURCE: Journal of Physical Organic Chemistry (  
1998), 11(10), 731-736

CODEN: JPOCEE; ISSN: 0894-3230

PUBLISHER: John Wiley & Sons Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Correlation anal. of the oxidation potentials of N,N',N''-triphenyl- 1,3,5-  
triaminobenzenes (TPABs) substituted at the para positions of the outer Ph  
rings shows a linear free energy relation with resonance-enhanced substituent  
parameters ( $\sigma^+$ ). Reaction parameters ( $\rho^+$ ) for oxidation of TPABs are -1.53, -  
1.45, and -1.34 (per substituent) in CH<sub>2</sub>Cl<sub>2</sub>, MeCN and propylene carbonate  
resp. The resonance enhancement and small magnitude of the  $\rho^+$  values are  
related to a significant but weak delocalization of charge onto the outer Ph  
rings in the MOs of radical cations resulting from the oxidation of TPABs.  
Data on the oxidation of p-substituted triphenylamines were treated similarly  
and gave a  $\rho^+$  value of -3.27 (per substituent) in MeCN, greater than that for  
TPABs owing to a more significant delocalization of charge onto the Ph rings  
in the MOs of the corresponding radical cations. To demonstrate their  
predictive value, these linear free energy correlations were used to estimate  
the oxidation potentials of similarly substituted N,N,N',N',N'',N''-  
hexaphenyl-1,3,5-triaminobenzenes, which are of interest as building blocks  
for mol. magnetic materials.

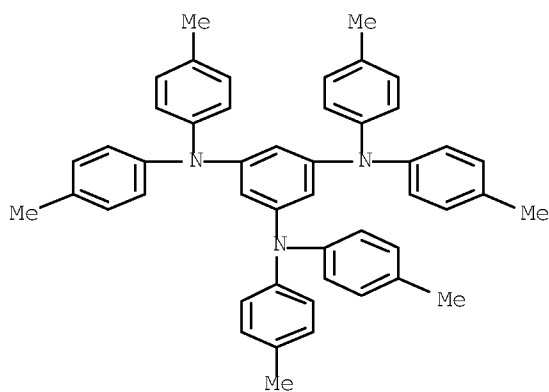
IT 165820-85-9

RL: FMU (Formation, unclassified); PRP (Properties); FORM  
(Formation, nonpreparative)

(estimated reaction property for application to use in magnetic  
materials; substituent effects on electrochem. oxidation of  
N,N',N''-triphenyl-1,3,5-triaminobenzenes)

RN 165820-85-9 HCAPLUS

CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N''-hexakis(4-methylphenyl)-,  
radical ion(1+) (9CI) (CA INDEX NAME)



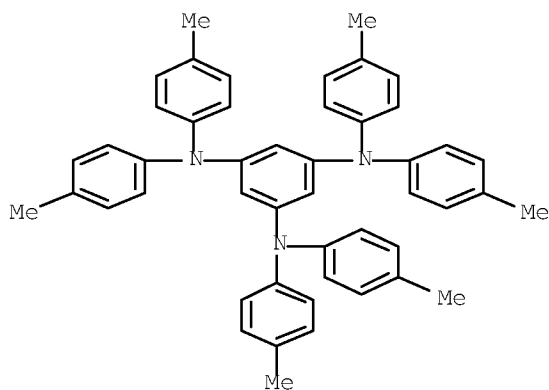
IT 134257-64-0

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(estimated reaction property for application to use in magnetic materials; substituent effects on electrochem. oxidation of N,N',N''-triphenyl-1,3,5-triaminobenzenes)

RN 134257-64-0 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-methylphenyl)-(CA INDEX NAME)



CC 22-7 (Physical Organic Chemistry)

Section cross-reference(s): 72, 77

IT 159506-66-8 165820-85-9 217638-12-5D, derivs.

RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)

(estimated reaction property for application to use in magnetic materials; substituent effects on electrochem. oxidation of N,N',N''-triphenyl-1,3,5-triaminobenzenes)

IT 108-72-5D, 1,3,5-Benzenetriamine, derivs. 126738-30-5 134257-64-0

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(estimated reaction property for application to use in magnetic

materials; substituent effects on electrochem. oxidation of  
N,N',N''-triphenyl-1,3,5-triaminobenzenes)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L28 ANSWER 31 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:747525 HCAPLUS Full-text

DOCUMENT NUMBER: 128:75007

ORIGINAL REFERENCE NO.: 128:14671a,14674a

TITLE: Models for charged organic high-spin systems;  
synthesis and cyclic voltammetry of one- and  
two-dimensional diarylaminobenzenes

AUTHOR(S): Yano, Masafumi; Furuichi, Mutsuo; Sato,  
Kazunobu; Shiomi, Daisuke; Ichimura, Akio; Abe,  
Kyo; Takui, Takeji; Itoh, Koichi

CORPORATE SOURCE: Department Chemistry, Faculty Science, Osaka  
City University, Osaka, 558, Japan

SOURCE: Molecular Crystals and Liquid Crystals Science  
and Technology, Section A: Molecular Crystals  
and Liquid Crystals (1997), 306,  
501-506

CODEN: MCLCE9; ISSN: 1058-725X

PUBLISHER: Gordon & Breach Science Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 128:75007

AB A series of 1,3-bis- (DABs) and 1,3,5-tris(diaryl-amino)benzenes (TABs) were  
synthesized as model precursors for polycationic  $\pi$ -conjugated high-spin  
systems. CV measurements at low temperature showed that the chemical  
stability in solution of mono- and polycationic oxidation states of the  
various DABs and TABs derivs. depend on their structures. Correlation between  
the chemical stability of these cations and their mol. structure is discussed.

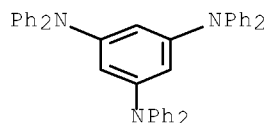
IT 126717-23-5P 126717-25-7P 134257-64-0P  
177659-51-7P 177659-52-8P 189764-92-9P  
189764-93-0P 189764-95-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP  
(Preparation)

(synthesis and cyclic voltammetry of one- and two-dimensional  
diarylaminobenzenes as models for charged organic high-spin systems)

RN 126717-23-5 HCAPLUS

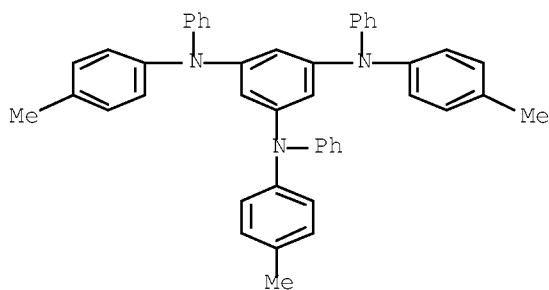
CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX  
NAME)



RN 126717-25-7 HCAPLUS

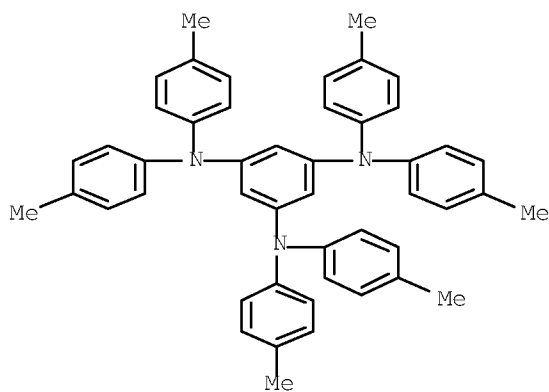
CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-methylphenyl)-N1,N3,N5-  
triphenyl- (CA INDEX NAME)





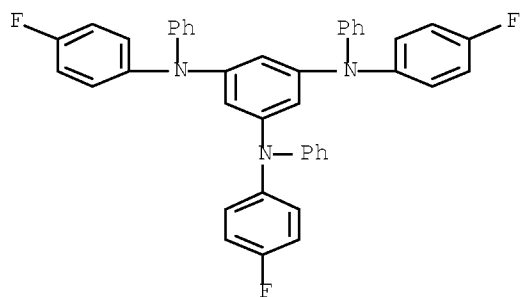
RN 134257-64-0 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-methylphenyl)-  
(CA INDEX NAME)



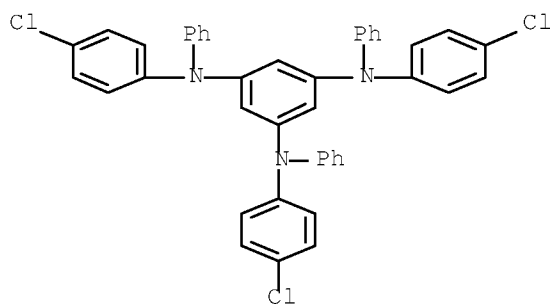
RN 177659-51-7 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-fluorophenyl)-N1,N3,N5-  
triphenyl- (CA INDEX NAME)



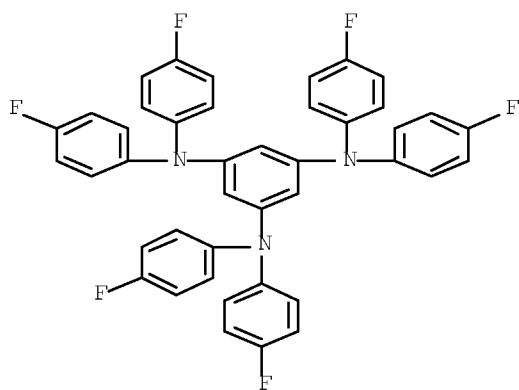
RN 177659-52-8 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-chlorophenyl)-N1,N3,N5-  
triphenyl- (CA INDEX NAME)



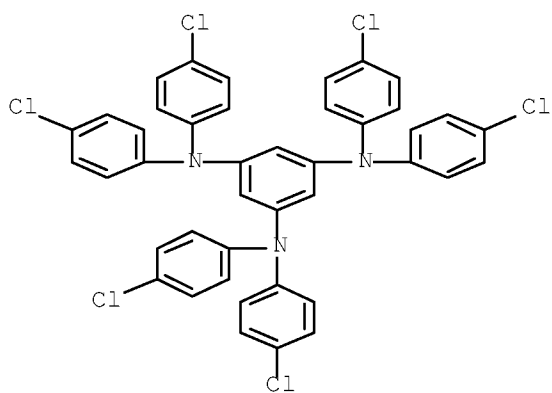
RN 189764-92-9 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-fluorophenyl)-  
(CA INDEX NAME)



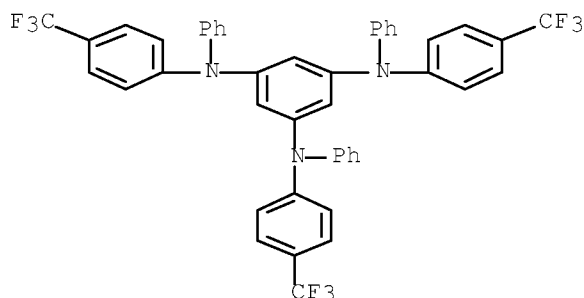
RN 189764-93-0 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-chlorophenyl)-  
(CA INDEX NAME)



RN 189764-95-2 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-triphenyl-N1,N3,N5-tris[4-(trifluoromethyl)phenyl]-  
(CA INDEX NAME)



CC 22-7 (Physical Organic Chemistry)  
 IT 92899-33-7P 126717-23-5P 126717-25-7P  
 126738-30-5P 127580-03-4P 134257-64-0P  
 177659-51-7P 177659-52-8P 186494-37-1P  
 186494-38-2P 186494-39-3P 186494-40-6P 186494-41-7P  
 186494-42-8P 189764-91-8P 189764-92-9P  
 189764-93-0P 189764-94-1P 189764-95-2P  
 200728-88-7P 200728-89-8P 200728-90-1P 200728-91-2P  
 200728-92-3P 200728-93-4P 200728-94-5P 200728-95-6P  
 200728-96-7P 200728-97-8P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP  
 (Preparation)  
 (synthesis and cyclic voltammetry of one- and two-dimensional  
 diarylaminobenzenes as models for charged organic high-spin systems)  
 REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L28 ANSWER 32 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1997:249934 HCAPLUS Full-text  
 DOCUMENT NUMBER: 126:343347  
 ORIGINAL REFERENCE NO.: 126:66773a,66776a  
 TITLE: Models for positive charge fluctuation vs. spin  
 polarization in organic systems; synthesis and  
 cyclic voltammetry of 2D and 1D hyperbranched  
 $\pi$ -aryl-based amines  
 AUTHOR(S): Yano, M.; Furuichi, M.; Sato, K.; Shiomi, D.;  
 Ichimura, A.; Abe, K.; Takui, T.; Itoh, K.  
 CORPORATE SOURCE: Department of Chemistry, Faculty of Science,  
 Osaka City University, Sumiyoshi-ku, Osaka, 558,  
 Japan  
 SOURCE: Synthetic Metals (1997), 85(1-3),  
 1665-1666  
 CODEN: SYMEDZ; ISSN: 0379-6779  
 PUBLISHER: Elsevier  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 GI

AB A series of substituted N,N,N',N',N'',N''-hexaphenyl-1,3,5- benzenetriamine (TAB) I (R = H, Cl, F, Me, OMe; R1 = H, Cl, F, Me, OMe, CF3) and N,N,N',N'-tetraphenyl-1,3-benzenediamine (DAB) II (same R; R2 = H, Me) were synthesized as models for pos. charged fluctuation vs. spin polarization in organic systems. CV measurements at low temperature showed that the chemical stability-in-solution of mono and poly-cationic oxidation states of the various HPTABs and TPDABs derivs. depend on their mol. structures and substituents.

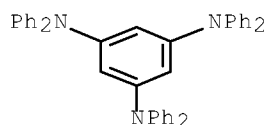
IT 126717-23-5 126717-25-7 134257-64-0  
177659-51-7 177659-52-8 189764-92-9  
189764-93-0 189764-95-2

RL: PRP (Properties)

(preparation of phenylbenzenetriamines and phenylbenzenediamines as pos. charge fluctuation and spin polarization models)

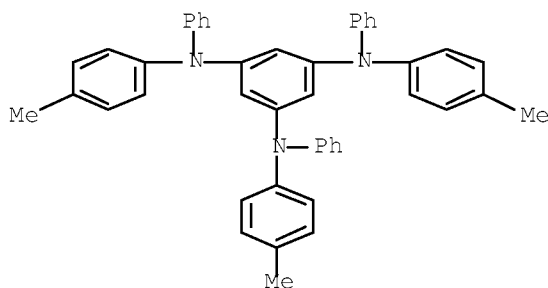
RN 126717-23-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



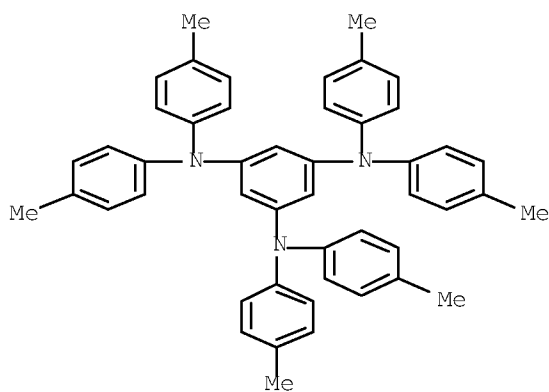
RN 126717-25-7 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-methylphenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



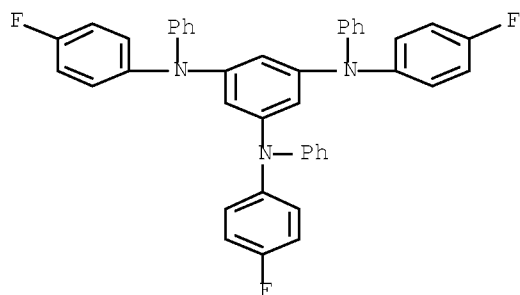
RN 134257-64-0 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-methylphenyl)- (CA INDEX NAME)



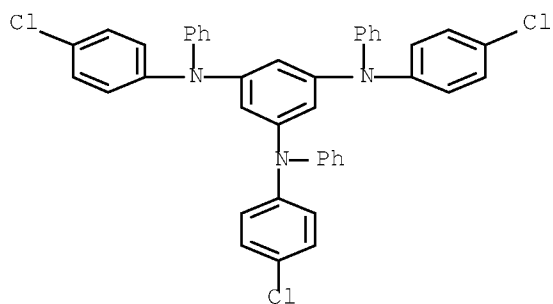
RN 177659-51-7 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-fluorophenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



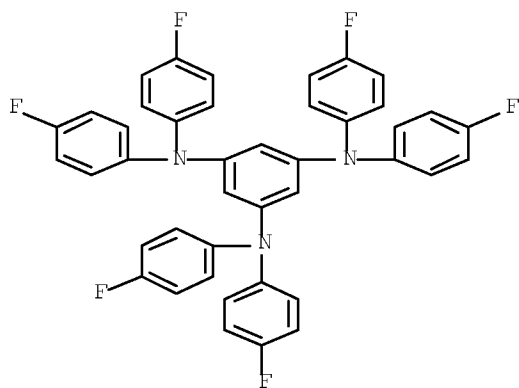
RN 177659-52-8 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-chlorophenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



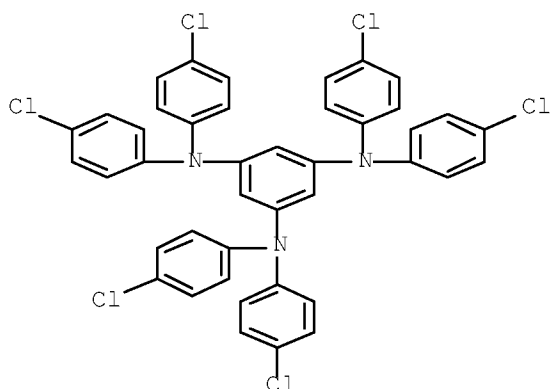
RN 189764-92-9 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-fluorophenyl)- (CA INDEX NAME)



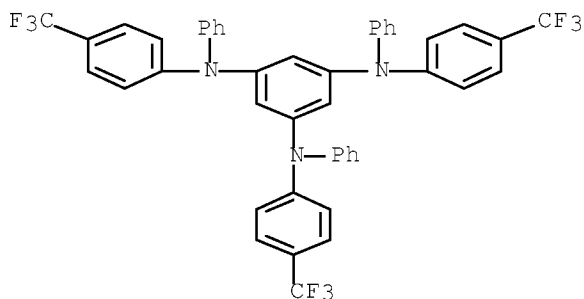
RN 189764-93-0 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-chlorophenyl)-  
(CA INDEX NAME)



RN 189764-95-2 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-triphenyl-N1,N3,N5-tris[4-(trifluoromethyl)phenyl]- (CA INDEX NAME)



CC 25-4 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
Section cross-reference(s): 22

IT 126717-23-5 126717-25-7 134257-64-0

177659-51-7 177659-52-8 189764-91-8  
189764-92-9 189764-93-0 189764-94-1  
189764-95-2

RL: PRP (Properties)

(preparation of phenylbenzenetriamines and phenylbenzenediamines as  
pos. charge fluctuation and spin polarization models)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L28 ANSWER 33 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1997:12764 HCAPLUS Full-text

DOCUMENT NUMBER: 126:52845

ORIGINAL REFERENCE NO.: 126:10286h,10287a

TITLE: Electrophotographic photoconductor using  
indandione or ninhydrin derivatives as positive  
hole-transporting agent

INVENTOR(S): Imanaka, Yukikatsu; Myamoto, Eiichi

PATENT ASSIGNEE(S): Mita Industrial Co Ltd, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE         |
|-------------|------|----------|-----------------|--------------|
| -----       | ---- | -----    | -----           |              |
| JP 08278642 | A    | 19961022 | JP 1995-84148   | 199504<br>10 |

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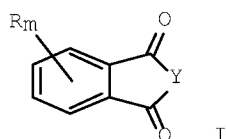
PRIORITY APPLN. INFO.: JP 1995-84148

199504  
10

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OTHER SOURCE(S): MARPAT 126:52845

GI



AB The photoconductor consists of successively laminated a charge-generating  
layer and a charge-transporting layer containing indandiones or ninhydrins I  
[Y = CH<sub>2</sub>, C(OH)<sub>2</sub>, CO; R = H, alkyl, aryl, alkoxy, halo; m = 1-4] as pos. hole-  
transporting agent. The charge-generating layer may contain bisazo, perylene,  
and/or phthalocyanine pigments. The photoconductor showing improved light  
resistance and stable changeability is applicable in repeating use.

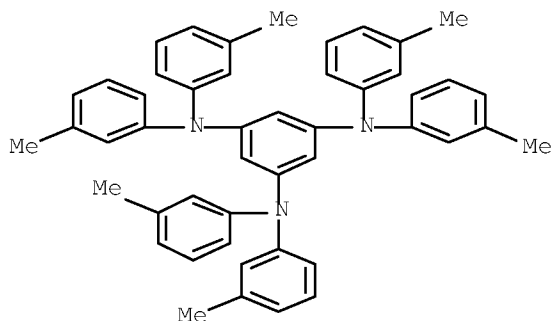
IT 168091-66-5 173436-45-8

RL: TEM (Technical or engineered material use); USES (Uses)

(charge-transporting agent; in electrophotog. photoconductor  
using indandione or ninhydrin derivative as pos. hole-transporting

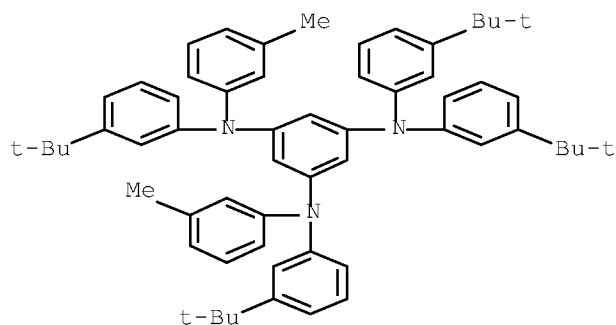
agent)

RN 168091-66-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(3-methylphenyl)-  
(CA INDEX NAME)

RN 173436-45-8 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N5-tetrakis[3-(1,1-dimethylethyl)phenyl]-N3,N5-bis(3-methylphenyl)- (CA INDEX NAME)



IC ICM G03G005-05

ICS G03G005-06

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)

IT 65181-78-4 89114-90-9 105465-13-2 124235-73-0 124591-09-9

132037-07-1 137133-15-4 142017-30-9 167377-22-2

~~168091-66-5~~ 173436-45-8 173923-39-2

173923-43-8 173923-50-7 184865-77-8 184865-78-9

RL: TEM (Technical or engineered material use); USES (Uses)

(charge-transporting agent; in electrophotog. photoconductor  
using indandione or ninhydrin derivative as pos. hole-transporting  
agent)

L28 ANSWER 34 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1996:306798 HCAPLUS Full-text

DOCUMENT NUMBER: 125:86058

ORIGINAL REFERENCE NO.: 125:16217a,16220a

TITLE: Magnetic properties of 1,3,5-tris[bis(p-methoxyphenyl)amino]benzene cation radicals

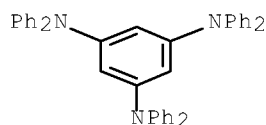


AUTHOR(S): Yoshizawa, Kazunari; Hatanaka, Masahi; Ago, Hiroki; Tanaka, Kazuyoshi; Yamabe, Tokio  
 CORPORATE SOURCE: Sch. Eng., Kyoto Univ., Kyoto, 606-01, Japan  
 SOURCE: Bulletin of the Chemical Society of Japan ( 1996), 69(5), 1417-1422  
 CODEN: BCSJA8; ISSN: 0009-2673  
 PUBLISHER: Nippon Kagakkai  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

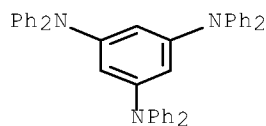
AB In order to pursue the possibility of charge-transfer organic ferromagnets, magnetic properties of the monocationic ClO<sub>4</sub><sup>-</sup> and BF<sub>4</sub><sup>-</sup> salts of 1,3,5-tris[bis(p-methoxyphenyl)amino]benzene (TBMAB) were characterized by means of ESR and a Faraday-type magnetic balance. MNDO-PM3 calcns. predicted 1,3,5-tris(diphenylamino)benzene (TDAB) dication and trication to be ground-state triplet and quartet, resp. Thus, these triaminobenzenes fulfill the necessary precondition for the appearance of intermol. ferromagnetic coupling based on McConnell's second model. Neg. Weiss consts. (-1 to 0 K) and low spin concns. (7-8%) were observed for TBMAB-ClO<sub>4</sub> and TBMAB-BF<sub>4</sub>, although, according to this rule, intermol. ferromagnetic coupling is expected to occur for these systems.

IT 126717-23-5, 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-hexaphenyl- 140848-82-4, 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-hexaphenyl-, radical ion(3+) 158414-88-1, 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-hexaphenyl-, radical ion(1+) 178455-26-0  
 RL: PRP (Properties)  
 (structure and energy of)

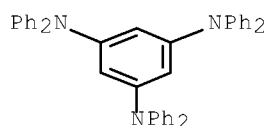
RN 126717-23-5 HCAPLUS  
 CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



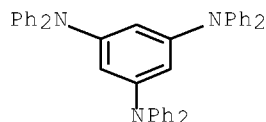
RN 140848-82-4 HCAPLUS  
 CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-hexaphenyl-, radical ion(3+) (9CI) (CA INDEX NAME)



RN 158414-88-1 HCAPLUS  
 CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-hexaphenyl-, radical ion(1+) (9CI) (CA INDEX NAME)



RN 178455-26-0 HCAPLUS  
CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N''-hexaphenyl-, radical  
ion(2+) (9CI) (CA INDEX NAME)



CC 22-10 (Physical Organic Chemistry)  
Section cross-reference(s): 77  
IT 126717-23-5, 1,3,5-Benzenetriamine, N,N,N',N',N'',N''-  
hexaphenyl- 140848-82-4, 1,3,5-Benzenetriamine,  
N,N,N',N',N'',N''-hexaphenyl-, radical ion(3+) 158414-88-1  
, 1,3,5-Benzenetriamine, N,N,N',N',N'',N''-hexaphenyl-, radical  
ion(1+) 178455-26-0  
RL: PRP (Properties)  
(structure and energy of)

L28 ANSWER 35 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1996:257410 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 125:19635

ORIGINAL REFERENCE NO.: 125:3819a,3822a

TITLE: Striking effects of halogen substituents on the  
glass-forming properties, glass-transition  
temperatures and stabilities of the glassy state  
of a new family of amorphous molecular  
materials, 1,3,5-tris(4-  
halogenophenylphenylamino)benzenes

AUTHOR(S): Kageyama, Hiroshi; Itano, Koji; Ishikawa,  
Wataru; Shiota, Yasuhiko

CORPORATE SOURCE: Dep. Appl. Chem., Osaka Univ., Osaka, 565, Japan

SOURCE: Journal of Materials Chemistry (1996),  
6(4), 675-6

CODEN: JMACEP; ISSN: 0959-9428

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new class of  $\pi$ -electron star-burst mols., 1,3,5-tris(4-  
halogenophenylphenylamino)benzenes, are synthesized for use as amorphous mol.  
materials. They readily form amorphous glasses, whereas the parent compound  
1,3,5-tris(diphenylamino)benzene instantly crystallizes; the ease of glass  
formation, glass-transition temperature, and stability of the glassy state are  
greatly affected by the type of halogen substituent.

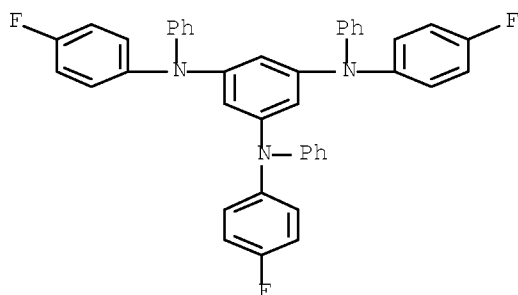
IT 177659-51-7 177659-52-8 177659-53-9

RL: PEP (Physical, engineering or chemical process); PRP  
(Properties); PROC (Process)

(glass formation, glass-transition temps. and stabilities of  
1,3,5-tris(4-halogenophenylphenylamino)benzene glasses)

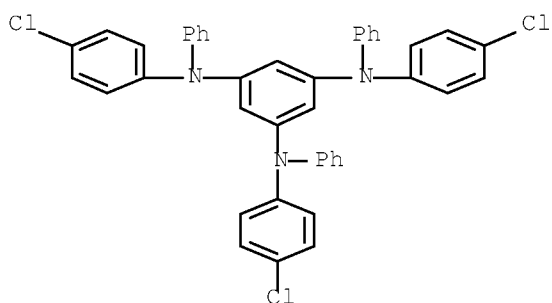
RN 177659-51-7 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-fluorophenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



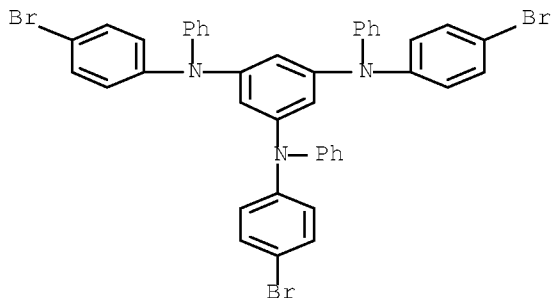
RN 177659-52-8 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-chlorophenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



RN 177659-53-9 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-bromophenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



CC 65-7 (General Physical Chemistry)

Section cross-reference(s): 69

IT 177659-51-7 177659-52-8 177659-53-9

RL: PEP (Physical, engineering or chemical process); PRP

(Properties); PROC (Process)

(glass formation, glass-transition temps. and stabilities of  
1,3,5-tris(4-halogenophenylphenylamino)benzene glasses)

L28 ANSWER 36 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:1006971 HCAPLUS Full-text

DOCUMENT NUMBER: 124:189451

ORIGINAL REFERENCE NO.: 124:34807a,34810a

TITLE: Laminated electrophotographic photoreceptor  
containing diphenoquinone derivative and bisazo  
pigment

INVENTOR(S): Myamoto, Eiichi; Imanaka, Yukikatsu

PATENT ASSIGNEE(S): Mita Industrial Co Ltd, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 25 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE         |
|-------------|------|----------|-----------------|--------------|
| -----       | ---- | -----    | -----           |              |
| JP 07271069 | A    | 19951020 | JP 1994-64139   | 199403<br>31 |

&lt;--

PRIORITY APPLN. INFO.:

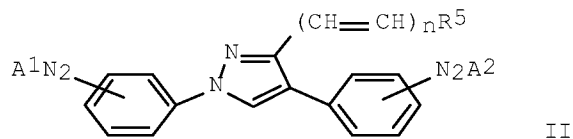
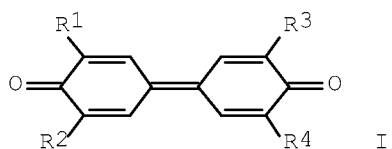
JP 1994-64139

199403  
31

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OTHER SOURCE(S): MARPAT 124:189451

GI



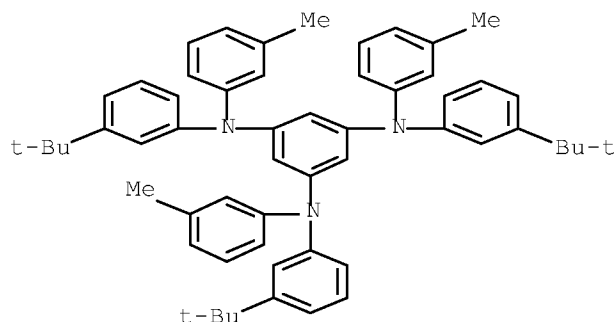
AB The photoreceptor has (A) a charge-transporting layer containing a hole-transporting agent, a diphenoquinone derivative I (R1-4 = H, alkyl, aryl, halo, NO<sub>2</sub>, CN, heterocycle) and optionally a charge-transporting agent NAr<sub>1</sub>Ar<sub>2</sub>Ar<sub>3</sub> [Ar<sub>1</sub>-3 = (substituted) aryl] and (B) a charge-generating layer containing a bisazo pigment II [A<sub>1</sub>, A<sub>2</sub> = coupler residue; R<sub>5</sub> = H, (substituted) alkyl, aryl, heterocycle; n = 0, 1]. The photoreceptor shows improved repeatability.

IT 173723-10-9

RL: DEV (Device component use); USES (Uses)  
(charge-transporting agent; laminated electrophotog.  
photoreceptor containing diphenoquinone derivative and bisazo pigment)

RN 173723-10-9 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris[3-(1,1-dimethylethyl)phenyl]-  
N1,N3,N5-tris(3-methylphenyl)- (CA INDEX NAME)



IC ICM G03G005-05

ICS G03G005-06

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)

IT 20676-79-3 105465-13-2 106614-54-4 124591-09-9 167377-22-2  
167377-26-6 173723-10-9 173723-11-0

RL: DEV (Device component use); USES (Uses)  
(charge-transporting agent; laminated electrophotog.  
photoreceptor containing diphenoquinone derivative and bisazo pigment)

L28 ANSWER 37 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:1006970 HCAPLUS Full-text

DOCUMENT NUMBER: 124:160318

ORIGINAL REFERENCE NO.: 124:29487a,29490a

TITLE: Laminated electrophotographic photoreceptor  
containing hindered amine in charge-transporting  
layer

INVENTOR(S): Myamoto, Eiichi; Imanaka, Yukikatsu

PATENT ASSIGNEE(S): Mita Industrial Co Ltd, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 26 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE         |
|-------------|------|----------|-----------------|--------------|
| -----       | ---- | -----    | -----           |              |
| JP 07271068 | A    | 19951020 | JP 1994-64138   | 199403<br>31 |

PRIORITY APPLN. INFO.:

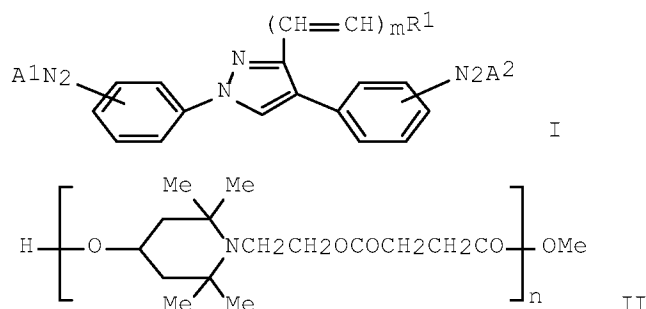
JP 1994-64138

199403  
31

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OTHER SOURCE(S) :  
GI

MARPAT 124:160318



AB The photoreceptor has (A) a charge-generating layer, preferably containing a bisazo pigment I [A1, A2 = coupler residue; R1 = H, (substituted) alkyl, aryl, heterocycle; m = 0, 1] and (B) a charge-transporting layer containing a hindered amine II (n = 10-20) and optionally a charge-transporting agent NAr1Ar2Ar3 [Ar1-3 = (substituted) aryl]. The photoreceptor shows improved repeatability.

IT 173436-45-8

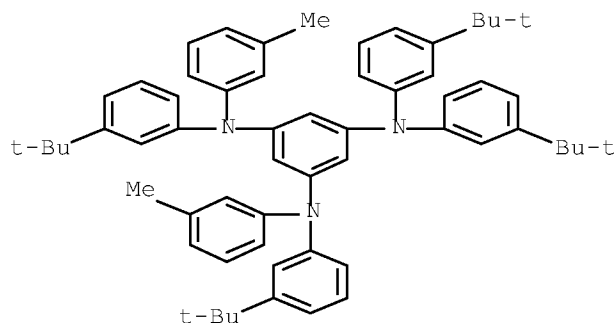
RL: DEV (Device component use); USES (Uses)

(charge-transporting agent; laminated electrophotog.

photoreceptor containing hindered amine in charge-transporting layer)

RN 173436-45-8 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N5-tetrakis[3-(1,1-dimethylethyl)phenyl]-N3,N5-bis(3-methylphenyl)- (CA INDEX NAME)



IC ICM G03G005-05

ICS G03G005-06

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 20676-79-3 105465-13-2 106614-54-4 124235-73-0 124591-08-8  
124591-09-9 167377-22-2 167377-26-6 173436-45-8

RL: DEV (Device component use); USES (Uses)

(charge-transporting agent; laminated electrophotog.

photoreceptor containing hindered amine in charge-transporting layer)

L28 ANSWER 38 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:948472 HCAPLUS Full-text

DOCUMENT NUMBER: 124:145515

ORIGINAL REFERENCE NO.: 124:27061a,27064a

TITLE: Syntheses and redox properties of di-, tri-, tetra-, and pentaamines

AUTHOR(S): Sasaki, Shigeru; Iyoda, Masahiko

CORPORATE SOURCE: Dep. Chem., Tokyo Metropolitan Univ., Hachioji, 192-03, Japan

SOURCE: Chemistry Letters (1995), (11), 1011-12

CODEN: CMLTAG; ISSN: 0366-7022

PUBLISHER: Nippon Kagakkai

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 124:145515

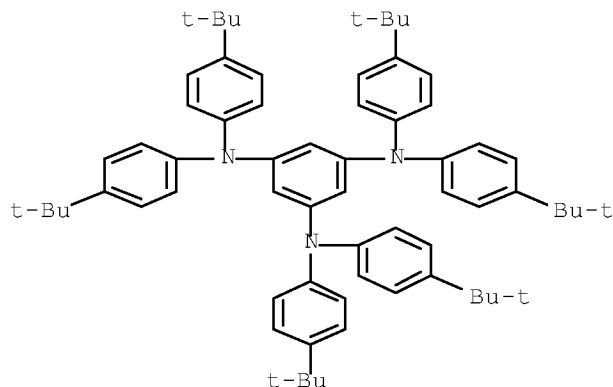
AB A series of di-, tri-, tetra-, and pentaamines were synthesized as precursors for corresponding di-, tri-, tetra-, and penta(aminium radical-cations) by the aryl-N bond formation reaction between aryl iodides and in situ prepared copper amide in refluxing pyridine. Cyclic voltammograms of meta-connected derivs. consisted of irreversible waves which imply side reactions in addition to oxidation of aminium radical-cations.

IT 165820-83-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 165820-83-7 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis[4-(1,1-dimethylethyl)phenyl]- (CA INDEX NAME)



CC 25-4 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

IT 13050-56-1P 51545-35-8P 126738-30-5P 165820-83-7P

173314-10-8P 173314-11-9P 173314-12-0P 173314-13-1P

173314-14-2P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

L28 ANSWER 39 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:943391 HCAPLUS Full-text

DOCUMENT NUMBER: 124:145314

ORIGINAL REFERENCE NO.: 124:27021a,27024a

TITLE: High-spin polycations of a triminobenzene

AUTHOR(S): Stickley, Kurt R.; Blackstock, Silac C.

CORPORATE SOURCE: Department Chemistry, Vanderbilt University,  
Nashville, TN, 37235, USA

SOURCE: Molecular Crystals and Liquid Crystals Science  
and Technology, Section A: Molecular Crystals  
and Liquid Crystals (1995),  
272(Proceedings of the Fourth International  
Conference on Molecule-Based Magnets, 1994, Pt.  
2), 303-7  
CODEN: MCLCE9; ISSN: 1058-725X

PUBLISHER: Gordon & Breach

DOCUMENT TYPE: Journal

LANGUAGE: English

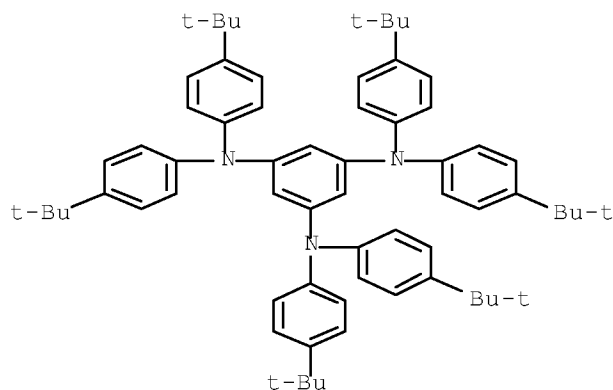
AB A symposium. Organic poly radical ions are mol. spin units which could be used in the construction of magnetic materials. They possess the feature of redox activation / deactivation, a potential means of reversibly controlling the mol. spin state of the unit, thus imparting a magnetic switch function. Here, we described the prospect of preparing tris(arylamines) suitably structured to yield long-lived cation, dication, and trication states of successively higher spin multiplicity. The preparation and oxidation of N,N,N',N',N'',N'''-hexa-p-anisyl-1,3,5-triaminobenzene (HATAB) are discussed, along with the ESR spectra of the HATAB higher oxidation states. The HATAB2+ and HATAB3+ ESR signals are assigned to triplet and quartet states resp. which, on the basis of cursory Curie-Weiss data, are tentatively assigned as the ground states of these poly cations, consistent with calculational results (AM1/UHF) on the unsubstituted system, 1,3,5-triaminobenzene dication and trication.

IT 165820-84-8 165820-85-9

RL: FMU (Formation, unclassified); PRP (Properties); FORM  
(Formation, nonpreparative)  
(high-spin polycations of triminobenzene derivative)

RN 165820-84-8 HCAPLUS

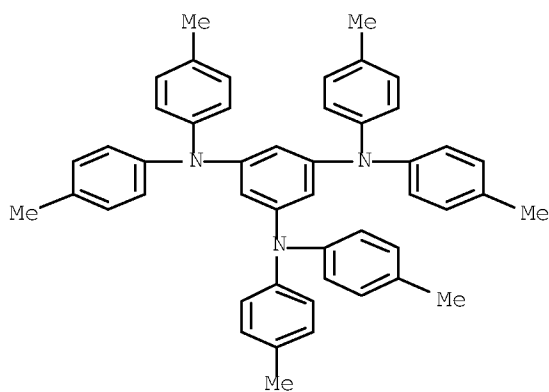
CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-hexakis[4-(1,1-dimethylethyl)phenyl]-, radical ion(1+) (9CI) (CA INDEX NAME)



RN 165820-85-9 HCAPLUS

CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-hexakis(4-methylphenyl)-, radical ion(1+) (9CI) (CA INDEX NAME)





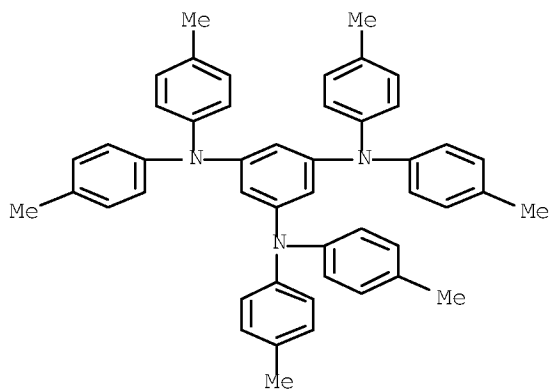
IT 134257-64-0 165820-83-7

RL: RCT (Reactant); RACT (Reactant or reagent)

(high-spin polycations of triminobenzene derivative)

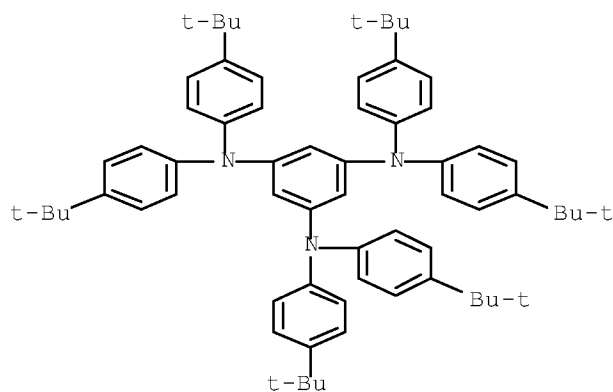
RN 134257-64-0 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-methylphenyl)-  
(CA INDEX NAME)



RN 165820-83-7 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis[4-(1,1-dimethylethyl)phenyl]- (CA INDEX NAME)



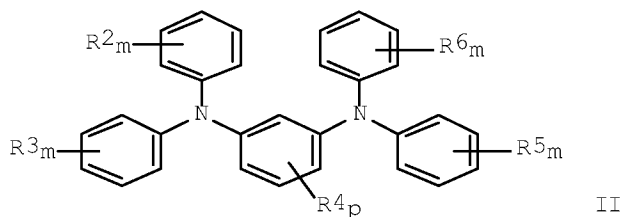
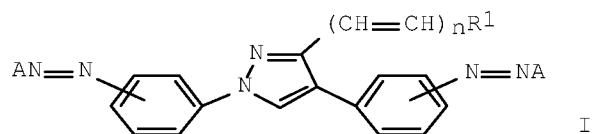
CC 22-13 (Physical Organic Chemistry)  
 Section cross-reference(s): 77  
 IT 159506-66-8 159573-71-4 159573-72-5 165820-84-8  
 165820-85-9 165820-86-0  
 RL: FMU (Formation, unclassified); PRP (Properties); FORM  
 (Formation, nonpreparative)  
 (high-spin polycations of triminobenzene derivative)  
 IT 696-62-8, 4-Iodoanisole 35787-71-4 104216-56-0  
 134257-64-0 165820-81-5 165820-83-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (high-spin polycations of triminobenzene derivative)

L28 ANSWER 40 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1995:746414 HCAPLUS Full-text  
 DOCUMENT NUMBER: 123:213115  
 ORIGINAL REFERENCE NO.: 123:37701a,37704a  
 TITLE: Electrophotographic photoreceptors containing  
 bisazo pigment  
 INVENTOR(S): Miyamoto, Eiichi; Sumita, Keisuke; Iwasaki,  
 Hiroaki; Oki, Tsuneo  
 PATENT ASSIGNEE(S): Mita Industrial Co Ltd, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 24 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE         |
|-------------|------|----------|-----------------|--------------|
| JP 07120948 | A    | 19950512 | JP 1992-159311  | 199206<br>18 |
| JP 3079293  | B2   | 20000821 | JP 1992-159311  | 199206<br>18 |

PRIORITY APPLN. INFO.: <--

GI



AB The photoreceptors comprise a conductive substrate coated with a photosensitive layer containing a bisazo pigment I [A = coupler residue; R1 = H, (substituted) alkyl, (substituted) aryl, (substituted) heterocycle; n = 0, 1] as a charge-generating material and a phenylenediamine derivative II [R2-6 = alkyl, alkoxy, halo, (N-substituted) amino, aryl, nitro, cyano; m = 0-5; p = 0-4] as a charge-transporting material. The photoreceptors show improved electrophotog. properties.

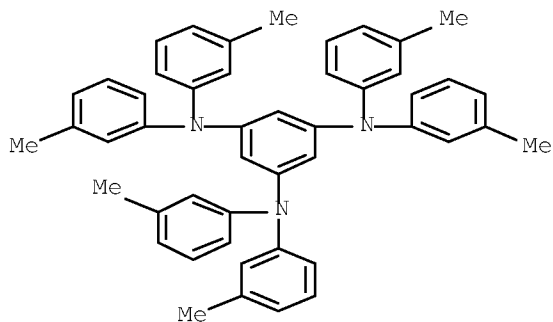
IT 168091-66-5

RL: DEV (Device component use); USES (Uses)

(electrophotog. photoreceptor charge-transporting agent)

RN 168091-66-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(3-methylphenyl)-  
(CA INDEX NAME)



IC ICM G03G005-06

ICS G03G005-06

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 124591-08-8 124591-09-9 132037-07-1 142017-30-9 142017-33-2  
156202-96-9 168091-64-3 168091-65-4 168091-66-5  
168091-67-6

RL: DEV (Device component use); USES (Uses)

(electrophotog. photoreceptor charge-transporting agent)

L28 ANSWER 41 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:636338 HCAPLUS Full-text

September 24, 2008

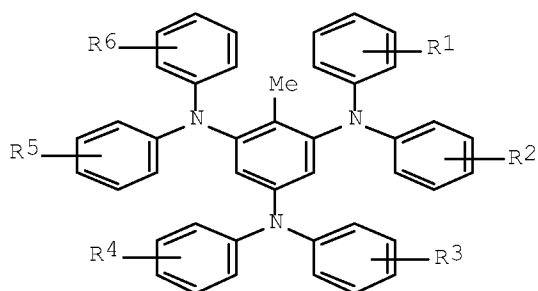
10/580,052

76

DOCUMENT NUMBER: 123:156360  
ORIGINAL REFERENCE NO.: 123:27607a,27610a  
TITLE: Electrophotographic photoreceptors using triamine compound as charge-transporting agent  
INVENTOR(S): Nakamura, Yoichi; Kazama, Toyoki  
PATENT ASSIGNEE(S): Fuji Electric Co Ltd, Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE     |
|------------------------|------|----------|-----------------|----------|
| JP 07084383            | A    | 19950331 | JP 1993-232113  | 19930920 |
| <--                    |      |          |                 |          |
| PRIORITY APPLN. INFO.: |      |          | JP 1993-232113  | 19930920 |
| <--                    |      |          |                 |          |

GI

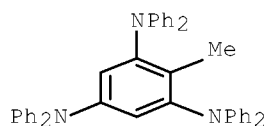


I

AB The photoreceptors comprise a conductive substrate laminated with a photosensitive layer containing  $\geq 1$  triamine compound I (R1-6 = H, alkyl, alkoxy) as a charge-transporting agent. The photoreceptors show high photosensitivity and improved cyclicability. Thus, an Al-evaporated polyester film was coated with a charge-generating layer containing X-type metal-free phthalocyanine and with a charge-transporting layer containing I (R1-6 = H) to give a photoreceptor.

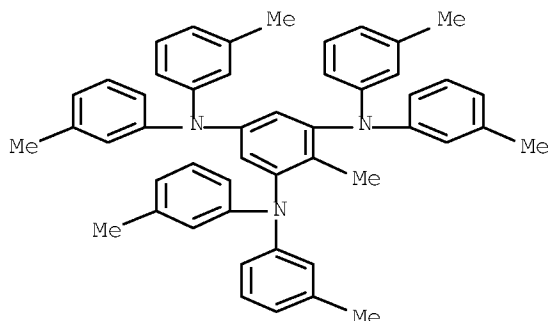
IT 167022-36-8 167022-37-9  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(electrophotog. photoreceptors containing benzenetriamines as charge transporters)

RN 167022-36-8 HCAPLUS  
CN 1,3,5-Benzenetriamine, 2-methyl-N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



RN 167022-37-9 HCAPLUS

CN 1,3,5-Benzenetriamine, 2-methyl-N1,N1,N3,N3,N5,N5-hexakis(3-methylphenyl)- (CA INDEX NAME)



IC ICM G03G005-06

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 167022-36-8 167022-37-9

RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(electrophotog. photoreceptors containing benzenetriamines as charge transporters)

L28 ANSWER 42 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:531024 HCAPLUS Full-text

DOCUMENT NUMBER: 124:29036

ORIGINAL REFERENCE NO.: 124:5579a,5582a

TITLE: Molecular orbital study on cationic states of triphenylene and 1,3,5-tris(diphenylamino)benzene as a design of charge-transfer organic ferromagnets

AUTHOR(S): Yoshizawa, Kazunari; Hatanaka, Masashi; Tanaka, Kazuyoshi; Yamabe, Tokio

CORPORATE SOURCE: Inst. for Fundamental Chemistry, Kyoto, 606, Japan

SOURCE: Synthetic Metals (1995), 71(1-3), 1829-30

CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

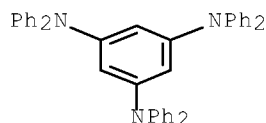
AB For the design of charge-transfer organic ferromagnets, the electronic structures of the neutral and mono-, di- and tricationic states of triphenylene and 1,3,5-tris(diphenylamino)benzene (TDAB) are studied by the PM3-MO method. The high-spin states of the di- and trications of TDAB lie below the corresponding low-spin states.

IT 126717-23-5, 1,3,5-Tris(diphenylamino)benzene  
158414-88-1 171675-14-2 171746-15-9

RL: PRP (Properties)  
(electronic structure of)

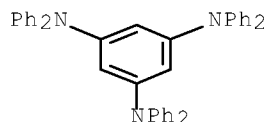
RN 126717-23-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



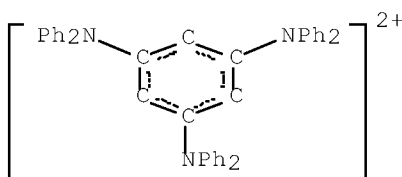
RN 158414-88-1 HCAPLUS

CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N''-hexaphenyl-, radical ion(1+) (9CI) (CA INDEX NAME)



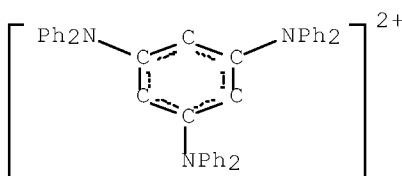
RN 171675-14-2 HCAPLUS

CN Cyclohexadienediylum, 1,3,5-tris(diphenylamino)- (9CI) (CA INDEX NAME)



RN 171746-15-9 HCAPLUS

CN Cyclohexadienediylum, 1,3,5-tris(diphenylamino)-, radical ion(1+) (9CI) (CA INDEX NAME)



CC 22-2 (Physical Organic Chemistry)

Section cross-reference(s): 77

IT 217-59-4, Triphenylene 34507-32-9, Triphenylene monocation  
126717-23-5, 1,3,5-Tris(diphenylamino)benzene 138878-64-5,

Triphenylene dication 158414-88-1 171675-13-1,  
Triphenylene trication 171675-14-2 171746-15-9  
RL: PRP (Properties)  
(electronic structure of)

L28 ANSWER 43 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:439876 HCAPLUS Full-text

DOCUMENT NUMBER: 123:111466

ORIGINAL REFERENCE NO.: 123:19901a,19904a

TITLE: Cation radicals of 1,3,5-  
tris(diarylamino)benzenes

AUTHOR(S): Stickley, Kurt R.; Blackstock, Silas C.

CORPORATE SOURCE: Department of Chemistry, Vanderbilt Univ.,  
Nashville, TN, 37235, USA

SOURCE: Tetrahedron Letters (1995), 36(10),  
1585-8

CODEN: TELEAY; ISSN: 0040-4039

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Cyclic voltammetry and ESR reveal the nature of the cation radicals of some  
1,3,5-tris(diarylamino)benzenes. Results show effectively delocalized radical  
cations with long solution lifetimes in cold media but with much less kinetic  
stability at ambient temperature than their monomeric triarylaminium cation  
radical counterparts. Intramol. ortho coupling, perhaps via  
disproportionation, is a postulated cation radical decay mode.

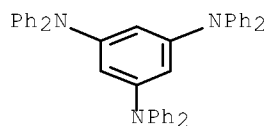
IT 126717-23-5P, 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-  
hexaphenyl 134257-64-0P, 1,3,5-Benzenetriamine,  
N,N,N',N',N'',N'''-hexakis(4-methylphenyl) 165820-82-6P  
165820-83-7P 165820-84-8P 165820-85-9P  
165905-29-3P 165967-01-1P

RL: PRP (Properties); SPN (Synthetic preparation); PREP  
(Preparation)

(preparation and properties of aryl-1,3,5-benzenetriamine radical  
cations)

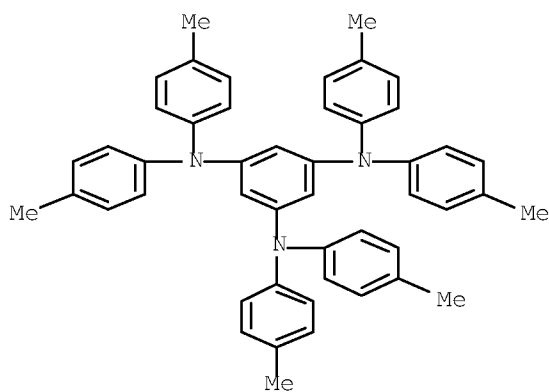
RN 126717-23-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX  
NAME)



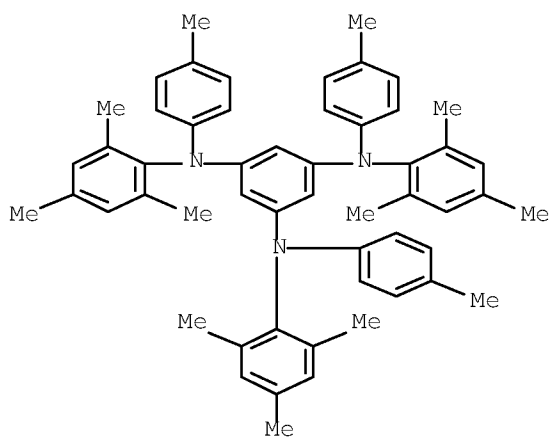
RN 134257-64-0 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-methylphenyl)-  
(CA INDEX NAME)



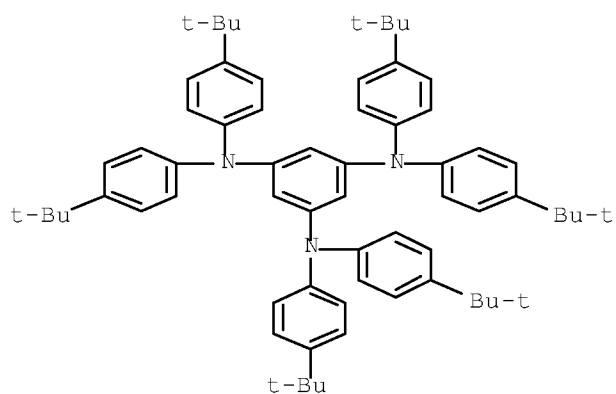
RN 165820-82-6 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-methylphenyl)-N1,N3,N5-tris(2,4,6-trimethylphenyl)- (CA INDEX NAME)



RN 165820-83-7 HCAPLUS

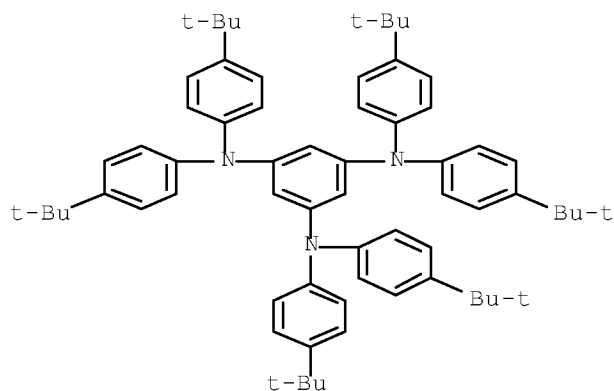
CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis[4-(1,1-dimethylethyl)phenyl]- (CA INDEX NAME)





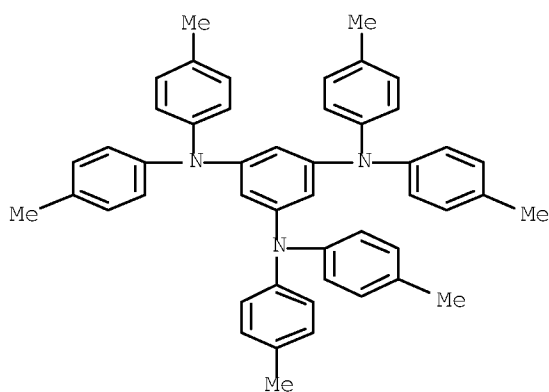
RN 165820-84-8 HCAPLUS

CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N''-hexakis[4-(1,1-dimethylethyl)phenyl]-, radical ion(1+) (9CI) (CA INDEX NAME)



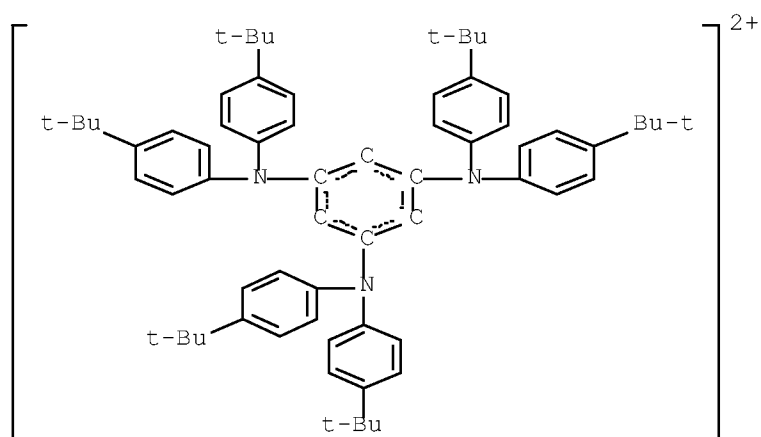
RN 165820-85-9 HCAPLUS

CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N''-hexakis(4-methylphenyl)-, radical ion(1+) (9CI) (CA INDEX NAME)



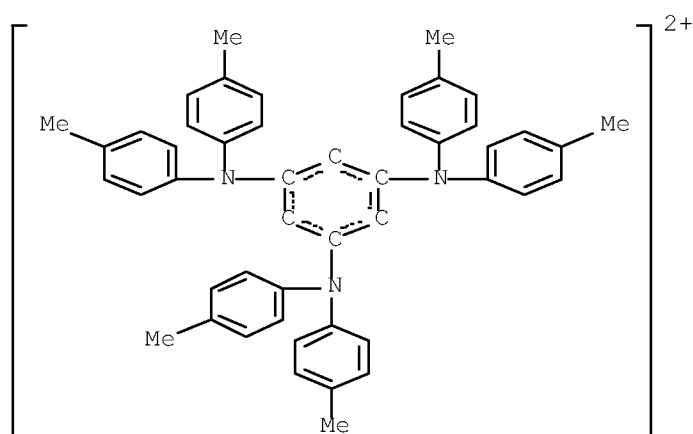
RN 165905-29-3 HCAPLUS

CN Cyclohexadienediylum, 1,3,5-tris[bis[4-(1,1-dimethylethyl)phenyl]amino]- (9CI) (CA INDEX NAME)



RN 165967-01-1 HCAPLUS

CN Cyclohexadienediylum, 1,3,5-tris[bis(4-methylphenyl)amino]- (9CI)  
(CA INDEX NAME)



CC 22-10 (Physical Organic Chemistry)

Section cross-reference(s): 25, 72

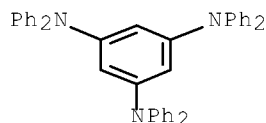
IT 126717-23-5P, 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-hexaphenyl 126738-30-5P, 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-hexakis(4-methoxyphenyl) 134257-64-0P, 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-hexakis(4-methylphenyl) 159506-66-8P, 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-hexakis(4-methoxyphenyl), radical ion(1+) 159573-71-4P 165820-81-5P 165820-82-6P 165820-83-7P 165820-84-8P 165820-85-9P 165820-86-0P 165905-29-3P 165967-01-1P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and properties of aryl-1,3,5-benzenetriamine radical cations)

L28 ANSWER 44 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:198957 HCAPLUS Full-text

DOCUMENT NUMBER: 122:30837

ORIGINAL REFERENCE NO.: 122:6091a,6094a  
TITLE: Triplet Dication and Quartet Trication of a Triaminobenzene  
AUTHOR(S): Stickley, Kurt R.; Blackstock, Silas C.  
CORPORATE SOURCE: Department of Chemistry, Vanderbilt University, Nashville, TN, 37235, USA  
SOURCE: Journal of the American Chemical Society (1994), 116(25), 11576-7  
CODEN: JACSAT; ISSN: 0002-7863  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB 1,3,5-Tris(di-p-anisylamino)benzene is shown to possess solution-stable cation, dication, and trication oxidation states at low temperature. The di- and trication structures are ground-state triplet and quartet mols., resp.  
IT 159506-65-7P  
RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation) (formation and ESR of)  
RN 159506-65-7 HCAPLUS  
CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N''-hexaphenyl-, radical ion(1+), dimer (9CI) (CA INDEX NAME)  
CM 1  
CRN 158414-88-1  
CMF C42 H33 N3  
CCI RIS



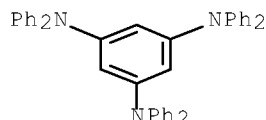
CC 22-7 (Physical Organic Chemistry)  
IT 159506-65-7P 159506-66-8P, 1,3,5-Tris(di-p-anisylamino)benzene cation radical  
RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation) (formation and ESR of)  
L28 ANSWER 45 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1994:700714 HCAPLUS Full-text  
DOCUMENT NUMBER: 121:300714  
ORIGINAL REFERENCE NO.: 121:55045a,55048a  
TITLE: Photocyclization reaction of 1,3,5-tris(diphenylamino)benzene  
AUTHOR(S): Yoshikawa, Satoru; Kotani, Yoshiko; Shirota, Yasuhiko  
CORPORATE SOURCE: Faculty of Engineering, Osaka University, Suita, 565, Japan  
SOURCE: Journal of Photopolymer Science and Technology (1994), 7(1), 83-4  
CODEN: JSTEED; ISSN: 0914-9244  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Direct irradiation of a C<sub>6</sub>H<sub>6</sub> solution of the title compound with light of wavelength >313 nm for 20 h under constant bubbling of O<sub>2</sub> gave 70% 2,4-bis(diphenylamino)-N-phenylcarbazole. The reaction proceeded via the excited triplet state of the starting compound

IT 126717-23-5P, 1,3,5-Tris(diphenylamino)benzene  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(photocyclization reaction of tris(diphenylamino)benzene)

RN 126717-23-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



CC 27-11 (Heterocyclic Compounds (One Hetero Atom))  
Section cross-reference(s): 22

IT 126717-23-5P, 1,3,5-Tris(diphenylamino)benzene  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(photocyclization reaction of tris(diphenylamino)benzene)

L28 ANSWER 46 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1994:640557 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 121:240557

ORIGINAL REFERENCE NO.: 121:43685a,43688a

TITLE: Electrochemical oxidation of  
1,3,5-tris(diphenylamino)benzene (TDAB) for  
polyradical material

AUTHOR(S): Yoshizawa, Kazunari; Ito, Akihiro; Tanaka,  
Kazuyoshi; Yamabe, Tokio

CORPORATE SOURCE: Division of Molecular Engineering, Faculty of  
Engineering, Kyoto University, Sakyo-ku, Kyoto,  
606-01, Japan

SOURCE: Synthetic Metals (1994), 66(1), 81-3  
CODEN: SYMEDZ; ISSN: 0379-6779

DOCUMENT TYPE: Journal

LANGUAGE: English

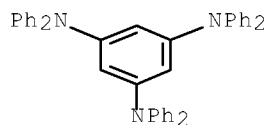
AB Electrochem. coupling of 1,3,5-tris(diphenylamino)benzene (TDAB) occurs in dichloromethane or trichloroethane solution in the presence of tetrabutylammonium tetrafluoroborate or perchlorate. The obtained material contains radical cations, the spin concentration of which is of the order 10<sup>19</sup> g<sup>-1</sup>. An anodic reaction pathway of TDAB is proposed from the dimerization mechanism of the triphenylaminium radical cation.

IT 158414-89-2P, 1,3,5-Tris(diphenylamino)benzene radical  
ion(1+) tetrafluoroborate(1-)  
RL: PEP (Physical, engineering or chemical process); PNU  
(Preparation, unclassified); PRP (Properties); RCT (Reactant); PREP  
(Preparation); PROC (Process); RACT (Reactant or reagent)  
(electrochem. formation and IR spectrum and spin concns. of)

RN 158414-89-2 HCAPLUS

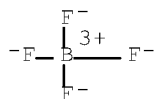
CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N''-hexaphenyl-, radical  
ion(1+), tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CRN 158414-88-1  
 CMF C42 H33 N3  
 CCI RIS

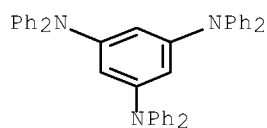


CM 2

CRN 14874-70-5  
 CMF B F4  
 CCI CCS



IT 126717-23-5, 1,3,5-Tris(diphenylamino)benzene  
 RL: PEP (Physical, engineering or chemical process); PRP  
 (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or  
 reagent)  
 (electrochem. oxidation for polyradical material)  
 RN 126717-23-5 HCAPLUS  
 CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX  
 NAME)



CC 72-2 (Electrochemistry)  
 Section cross-reference(s): 22, 35  
 IT 158414-89-2P, 1,3,5-Tris(diphenylamino)benzene radical  
 ion(1+) tetrafluoroborate(1-) 158414-90-5P, 1,3,5-  
 Tris(diphenylamino)benzene radical ion(1+) perchlorate  
 RL: PEP (Physical, engineering or chemical process); PNU  
 (Preparation, unclassified); PRP (Properties); RCT (Reactant); PREP  
 (Preparation); PROC (Process); RACT (Reactant or reagent)  
 (electrochem. formation and IR spectrum and spin concns. of)  
 IT 126717-23-5, 1,3,5-Tris(diphenylamino)benzene  
 RL: PEP (Physical, engineering or chemical process); PRP  
 (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or  
 reagent)  
 (electrochem. oxidation for polyradical material)

L28 ANSWER 47 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1994:30300 HCAPLUS Full-text

DOCUMENT NUMBER: 120:30300

ORIGINAL REFERENCE NO.: 120:5709a,5712a

TITLE: Molecular orbital study on quartet molecules with trigonal axis of symmetry

AUTHOR(S): Yoshizawa, Kazunari; Hatanaka, Masashi; Ito, Akihiro; Tanaka, Kazuyoshi; Yamabe, Tokio

CORPORATE SOURCE: Fac. Eng., Kyoto Univ., Kyoto, 606-01, Japan

SOURCE: Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (1993), 232, 323-32

CODEN: MCLCE9; ISSN: 1058-725X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The ESR spectrum of the randomly oriented cationic triradical of 1,3,5-tris(diphenylamino)benzene (TDAB) is shown to agree well with the theor. prediction of a quartet ( $S = 3/2$ ) mol. The electronic structures of non-Kekule-type isoelectronic mols. 1,3,5-trimethylenebenzene (TMB) and 1,3,5-triaminobenzene trication (TAB3+) are discussed by means of the ab initio MO (MO) method in the UHF scheme. In TMB the quartet state with planar  $D_{3h}$  also lies 16.9 kcal/mol below the lowest doublet state with an orthogonal geometry where one of the amino groups is twisted out of the mol. plane. These quartet ground states result from the nearly threefold-degenerate orbitals consisting the nonbonding MOs. In addition, the quartet-doublet splitting energy of TDAB is investigated using the semiempirical AM1 method.

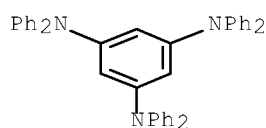
IT 140848-82-4, 1,3,5-Tris(diphenylamino)benzene triradical trication

RL: PRP (Properties)

(ESR and quartet ground state structure and conformation of, MO calcn. of)

RN 140848-82-4 HCAPLUS

CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N''-hexaphenyl-, radical ion(3+) (9CI) (CA INDEX NAME)



CC 22-3 (Physical Organic Chemistry)

Section cross-reference(s): 77

IT 140848-82-4, 1,3,5-Tris(diphenylamino)benzene triradical trication

RL: PRP (Properties)

(ESR and quartet ground state structure and conformation of, MO calcn. of)

L28 ANSWER 48 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1993:682630 HCAPLUS Full-text

DOCUMENT NUMBER: 119:282630

ORIGINAL REFERENCE NO.: 119:50375a,50378a

TITLE: Polymorphism of starburst molecules: methyl-substituted derivatives of 1,3,5-tris(diphenylamino)benzene

AUTHOR(S): Ishikawa, Wataru; Inada, Hiroshi; Nakano, Hideyuki; Shiota, Yasuhiko  
CORPORATE SOURCE: Fac. Eng., Osaka Univ., Suita, 565, Japan  
SOURCE: Journal of Physics D: Applied Physics (1993), 26(8B), B94-B99  
CODEN: JPAPBE; ISSN: 0022-3727  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Starburst mols. based on  $\pi$ -electron systems for making amorphous mol. materials, 1,3,5-tris(2-methylphenylphenylamino)benzene and 1,3,5-tris(4-methylphenylphenylamino)benzene, show polymorphism depending upon the history of heat treatment which involves crystallization via amorphous glasses as characterized by differential scanning calorimetry, x-ray diffraction, and polarizing microscopy.

IT 126717-25-7, 1,3,5-Tris(4-methylphenylphenylamino)benzene

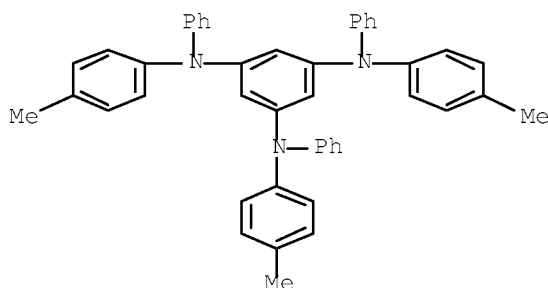
142143-88-2, 1,3,5-Tris(2-methylphenylphenylamino)benzene

RL: PROC (Process)

(polymorphism of starburst mols.)

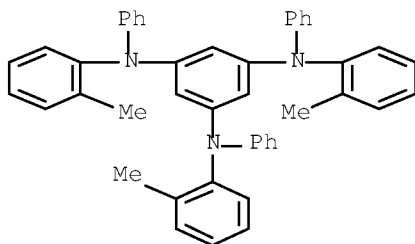
RN 126717-25-7 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-methylphenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



RN 142143-88-2 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(2-methylphenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



CC 75-7 (Crystallography and Liquid Crystals)

IT 126717-25-7, 1,3,5-Tris(4-methylphenylphenylamino)benzene

142143-88-2, 1,3,5-Tris(2-methylphenylphenylamino)benzene

RL: PROC (Process)

(polymorphism of starburst mols.)

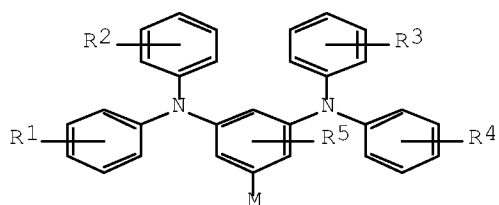
September 24, 2008

10/580,052

88

ACCESSION NUMBER: 1992:601533 HCAPLUS Full-text  
DOCUMENT NUMBER: 117:201533  
ORIGINAL REFERENCE NO.: 117:34613a,34616a  
TITLE: Organic thin-film electroluminescent element  
INVENTOR(S): Takahara, Shigeru; Fukuda, Nobuhiro; Ohashi, Yutaka  
PATENT ASSIGNEE(S): Mitsui Toatsu Chemicals, Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

| PATENT NO.<br>-----    | KIND<br>---- | DATE<br>-----     | APPLICATION NO.<br>----- | DATE         |
|------------------------|--------------|-------------------|--------------------------|--------------|
| JP 04126790            | A            | 19920427          | JP 1990-247161           | 199009<br>19 |
|                        |              |                   | <--                      |              |
| PRIORITY APPLN. INFO.: |              |                   | JP 1990-247161           | 199009<br>19 |
|                        |              |                   | <--                      |              |
| OTHER SOURCE(S):       |              | MARPAT 117:201533 |                          |              |
| GI                     |              |                   |                          |              |



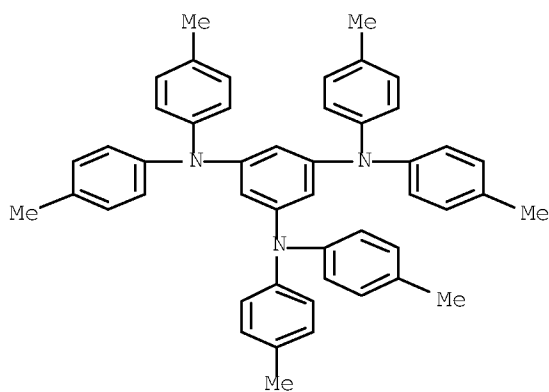
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AB The element comprises a pair of transparent electrode layers (1) sandwiching a laminate of a hole-transport (2) and a phosphor (3) layer, wherein (2) contains a m-phenylenediamine derivative I {R1-5=H, (un)substituted-alkyl, -alkoxyl, -halo; M = H, alkyl, alkoxyl, halo, [R6(C6H4)][R7(C6H4)]N; R6,7 = H, (un)substituted-alkyl, -alkoxyl, -halo}. The element provides a stable long-life backlight for liquid display devices.

IT 134257-64-0  
RL: USES (Uses)  
(organic thin-film electroluminescent elements from, as hole transporter)

RN 134257-64-0 HCAPLUS  
CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-methylphenyl)-(CA INDEX NAME)





IC ICM C09K011-06  
ICS H01L033-00; H05B033-14  
CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 25  
IT 92899-33-7 ~~134257-64-0~~  
RL: USES (Uses)  
(organic thin-film electroluminescent elements from, as hole transporter)

L28 ANSWER 50 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1992:447799 HCAPLUS Full-text

DOCUMENT NUMBER: 117:47799

ORIGINAL REFERENCE NO.: 117:8503a,8506a

TITLE: ESR of the cationic triradical of  
1,3,5-tris(diphenylamino)benzene

AUTHOR(S): Yoshizawa, Kazunari; Chano, Akihisa; Ito, Akihiro; Tanaka, Kazuyoshi; Yamabe, Tokio; Fujita, Hideo; Yamauchi, Jun; Shiro, Motoo

CORPORATE SOURCE: Fac. Eng., Kyoto Univ., Kyoto, 606-01, Japan

SOURCE: Journal of the American Chemical Society (1992), 114(15), 5994-8

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

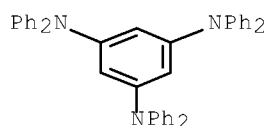
AB The ESR spectrum of the title species is discussed. The tricationic state was observed by cyclic voltammetry. The orange cationic triradical was prepared by oxidation with trifluoroacetic anhydride in the presence of tetrabutylammonium tetrafluoroborate in CH<sub>2</sub>Cl<sub>2</sub>. The ESR spectrum of the randomly oriented radicals in CH<sub>2</sub>Cl<sub>2</sub> glass agrees well with the theor. prediction of a quartet (S = 3/2) spin state with a zero-field splitting parameter D' of 13.1 G (0.0012 cm<sup>-1</sup>). This is the first observation of a high spin state of a cationic radical.

IT ~~140848-82-4P~~

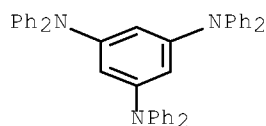
RL: PRP (Properties); FORM (Formation, nonpreparative); PREP (Preparation)  
(formation and ESR of)

RN 140848-82-4 HCAPLUS

CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N''-hexaphenyl-, radical ion(3+) (9CI) (CA INDEX NAME)



IT 126717-23-5P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation, x-ray anal., and cyclic voltammetry of)  
 RN 126717-23-5 HCAPLUS  
 CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX  
 NAME)



CC 22-10 (Physical Organic Chemistry)  
 IT 140848-82-4P  
 RL: PRP (Properties); FORM (Formation, nonpreparative); PREP  
 (Preparation)  
 (formation and ESR of)  
 IT 126717-23-5P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation, x-ray anal., and cyclic voltammetry of)

L28 ANSWER 51 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1992:417249 HCAPLUS Full-text  
 DOCUMENT NUMBER: 117:17249  
 ORIGINAL REFERENCE NO.: 117:3019a,3022a  
 TITLE: Phenylenediamine derivative charge-transporting  
 agent for electrophotographic photoreceptor  
 INVENTOR(S): Miyamoto, Eiichi; Muto, Nariaki; Maeda, Tatsuo;  
 Sumida, Keisuke; Kimura, Tadao  
 PATENT ASSIGNEE(S): Mita Industrial Co., Ltd., Japan  
 SOURCE: Eur. Pat. Appl., 60 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.        | KIND | DATE     | APPLICATION NO. | DATE         |
|-------------------|------|----------|-----------------|--------------|
| EP 455247         | A2   | 19911106 | EP 1991-107132  | 199105<br>02 |
| <--               |      |          |                 |              |
| EP 455247         | A3   | 19920513 |                 |              |
| EP 455247         | B1   | 19950913 |                 |              |
| R: DE, FR, GB, IT |      |          |                 |              |
| JP 04013775       | A    | 19920117 | JP 1990-116132  | 199005       |

02  
JP 08009577 B 19960131 <--  
JP 04013776 A 19920117 JP 1990-116133 199005  
02  
JP 08009578 B 19960131 <--  
JP 04013777 A 19920117 JP 1990-116134 199005  
02  
JP 08009579 B 19960131 <--  
JP 04013778 A 19920117 JP 1990-116135 199005  
02  
JP 07059673 B 19950628 <--  
PRIORITY APPLN. INFO.: JP 1990-116132 A 199005  
02  
JP 1990-116133 A 199005  
02  
JP 1990-116134 A 199005  
02  
JP 1990-116135 A 199005  
02  
OTHER SOURCE(S): MARPAT 117:17249  
GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

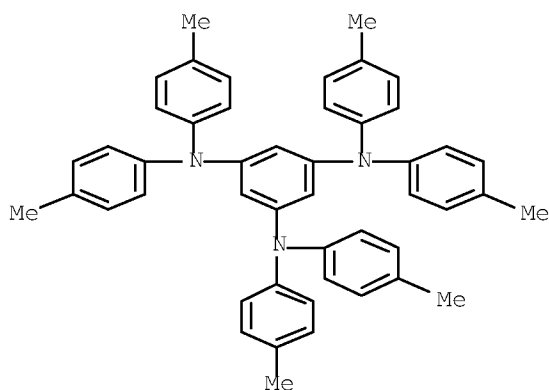
AB A m-phenylenediamine derivative having the general formula I, II, or III [R1-4 = alkyl, alkoxy, halogen, or (N-substituted) amino; R5, R6, R8 = alkyl, alkoxy, halogen, (N-substituted) amino, alkenyl, or aryl; R1 = alkyl, alkoxy, halogen, (N-substituted) amino, alkenyl, aryl, or an electron-attracting group selected from nitro, sulfo, cyano, COR9 (R9 = H, alkyl, or amino), carboxyl, or esterified carboxyl; l, m, o, p = an integer of 0-5; q, r = 0 or but q + r ≥ 1; S = an integer of 0-4] is used as a charge-transporting agent in an electrophotog. photoreceptor.

IT 134257-64-0P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and use of, as charge-transporting agent for  
electrophotog. photoreceptors)

RN 134257-64-0 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-methylphenyl)-  
(CA INDEX NAME)



IC ICM C07C211-54  
ICS C07C217-92; G03G005-06  
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
IT 124591-09-9P ~~134257-64-0P~~ 142017-16-1P 142017-17-2P  
142017-18-3P 142017-19-4P 142017-20-7P 142017-21-8P  
142017-22-9P 142017-23-0P 142017-24-1P 142017-25-2P  
142017-26-3P 142017-27-4P 142017-28-5P 142017-29-6P  
142017-30-9P 142017-31-0P 142017-32-1P 142017-33-2P  
142017-34-3P 142017-35-4P 142017-36-5P 142017-37-6P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and use of, as charge-transporting agent for electrophotog. photoreceptors)

L28 ANSWER 52 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1992:193607 HCAPLUS Full-text

DOCUMENT NUMBER: 116:193607

ORIGINAL REFERENCE NO.: 116:32789a,32792a

TITLE: Electron spin resonance of the quartet state of 1,3,5-tris(diphenylamino)benzene

AUTHOR(S): Yoshizawa, Kazunari; Chano, Akihisa; Ito, Akihiro; Tanaka, Kazuyoshi; Yamabe, Tokio; Fujita, Hideo; Yamauchi, Jun

CORPORATE SOURCE: Fac. Eng., Kyoto Univ., Kyoto, 606, Japan

SOURCE: Chemistry Letters (1992), (3), 369-72

CODEN: CMLTAG; ISSN: 0366-7022

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The ESR of the quartet state of 1,3,5-tris(diphenylamino)benzene (TDAB) trication is reported. The orange-colored cation radical is prepared by oxidation of TDAB with trifluoroacetic anhydride in a tetrabutylammonium tetrafluoroborate-CH<sub>2</sub>Cl<sub>2</sub> solution. The ESR spectrum reveals that the cation radical shows a typical quartet signal and that it is extremely stable at room temperature.

IT ~~140848-83-5P~~

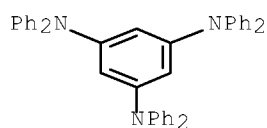
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and ESR of)

RN 140848-83-5 HCAPLUS

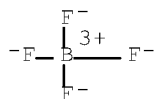
CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-hexaphenyl-, radical ion(3+), tris[tetrafluoroborate(1-)] (9CI) (CA INDEX NAME)

CRN 140848-82-4  
CMF C42 H33 N3  
CCI RIS

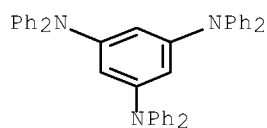


CM 2

CRN 14874-70-5  
CMF B F4  
CCI CCS



IT 126717-23-5P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);  
RACT (Reactant or reagent)  
(preparation and oxidation of, with trifluoroacetic anhydride in  
tetrabutylammonium tetrafluoroborate-methylene chloride)  
RN 126717-23-5 HCAPLUS  
CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX  
NAME)



CC 22-10 (Physical Organic Chemistry)  
Section cross-reference(s): 77  
IT 140848-83-5P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP  
(Preparation)  
(preparation and ESR of)  
IT 126717-23-5P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);  
RACT (Reactant or reagent)  
(preparation and oxidation of, with trifluoroacetic anhydride in  
tetrabutylammonium tetrafluoroborate-methylene chloride)

L28 ANSWER 53 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1991:256810 HCAPLUS Full-text

DOCUMENT NUMBER: 114:256810  
ORIGINAL REFERENCE NO.: 114:43179a,43182a  
TITLE: Molecular design for better charge transporting organic materials. (II). Hole drift mobility and chemical structure of arylamine derivatives  
AUTHOR(S): Tanaka, Hiroaki; Yamaguchi, Yasuhiro; Yokoyama, Masaaki  
CORPORATE SOURCE: Fac. Eng., Osaka Univ., Suita, 565, Japan  
SOURCE: Denshi Shashin Gakkaishi (1990), 29(4), 366-72  
CODEN: DSHGDD; ISSN: 0387-916X  
DOCUMENT TYPE: Journal  
LANGUAGE: Japanese

AB Arylamine derivs. containing only N-Ph units, which can be taken as a structural min. unit for hole carrier, were synthesized, and their hole-drift mobilities in polymer dispersions were studied in relation to their chemical structure. The results validated the previously proposed concept for developing better charge-transporting carriers and the dependence of their mobility on the chemical structure was thus observed for the first time, is related to the position of the N-Ph substituent on benzene. The dependence was interpreted by the more concrete concept of polyfunctionality and intramol.-mobility based on MO calcns. Among the compds. investigated, a new arylamine derivative, N,N,N',N'-tetrakis (3-methylphenyl)-m-phenylenediamine (m-PDA), showed a high-hole mobility.

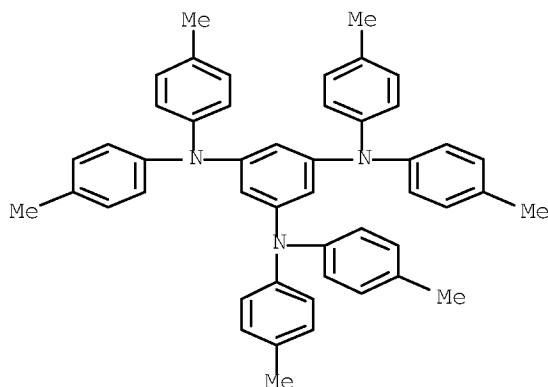
IT 134257-64-0

RL: USES (Uses)

(hole-drift mobility in, as charge-transport material for electrophotog.)

RN 134257-64-0 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexakis(4-methylphenyl)-  
(CA INDEX NAME)



CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 4316-54-5 80223-29-6 92899-33-7 124591-08-8 124591-09-9  
134257-63-9 134257-64-0

RL: USES (Uses)

(hole-drift mobility in, as charge-transport material for electrophotog.)

L28 ANSWER 54 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1990:188985 HCAPLUS Full-text

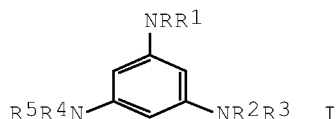
September 24, 2008

10/580,052

95

DOCUMENT NUMBER: 112:188985  
 ORIGINAL REFERENCE NO.: 112:31769a,31772a  
 TITLE: Electrophotographic photoreceptors containing a triaminobenzene charge-transporting substance  
 INVENTOR(S): Ogata, Michiko; Watanuki, Tsuneo; Kamisaka, Tomosumi; Tsukamoto, Koji; Saruwatari, Norio  
 PATENT ASSIGNEE(S): Fujitsu Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE              | APPLICATION NO. | DATE     |
|------------------------|------|-------------------|-----------------|----------|
| JP 01219838            | A    | 19890901          | JP 1988-46501   | 19880229 |
| <--                    |      |                   |                 |          |
| PRIORITY APPLN. INFO.: |      |                   | JP 1988-46501   | 19880229 |
| <--                    |      |                   |                 |          |
| OTHER SOURCE(S):       |      | MARPAT 112:188985 |                 |          |
| GI                     |      |                   |                 |          |

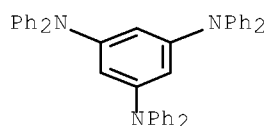


AB Electrophotog. photoreceptors have a photoconductive layer containing a triaminobenzene derivative I [R, R1-5 = lower alkyl, lower alkoxy, (substituted) aryl, aralkyl] as a charge-transporting substance on an elec. conductive support. The photoreceptors exhibit high sensitivity, low residual potential, and good cyclicability. Thus, an Al-deposited polyester film was coated with a composition containing AlCl3 phthalocyanine and polyester resin and overcoated with a composition containing I (R = R1-5 = Ph) and polycarbonate resin to give a photoreceptor showing good sensitivity and cyclicability.

IT 126717-23-5 126717-25-7  
 RL: USES (Uses)  
 (charge-transporting agent, for electrophotog. photoconductor, for repeated use)

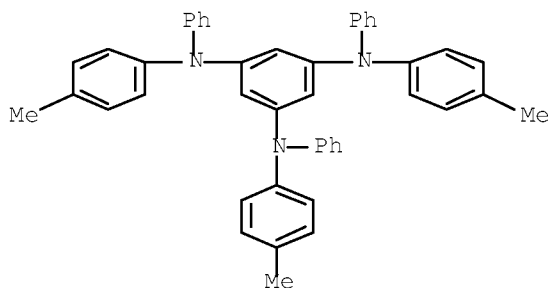
RN 126717-23-5 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N1,N3,N3,N5,N5-hexaphenyl- (CA INDEX NAME)



RN 126717-25-7 HCAPLUS

CN 1,3,5-Benzenetriamine, N1,N3,N5-tris(4-methylphenyl)-N1,N3,N5-triphenyl- (CA INDEX NAME)



IC ICM G03G005-06

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 126717-23-5 126717-24-6 126717-25-7  
126717-26-8 126738-30-5

RL: USES (Uses)

(charge-transporting agent, for electrophotog. photoconductor, for repeated use)

L28 ANSWER 55 OF 55 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1988:21113 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 108:21113

ORIGINAL REFERENCE NO.: 108:3571a,3574a

TITLE: Ab initio and semiempirical MO calculations of intermolecular effective exchange integrals between organic radicals. Designing of organic ferromagnet, ferrimagnet and ferromagnetic conductors

AUTHOR(S): Yamaguchi, Kizashi; Toyoda, Yasuyuki; Nakano, Masayoshi; Fueno, Takayuki

CORPORATE SOURCE: Fac. Eng. Sci., Osaka Univ., Toyonaka, 560, Japan

SOURCE: Synthetic Metals (1987), 19(1-3), 87-92

CODEN: SYMEDZ; ISSN: 0379-6779

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The intermol. effective exchange integrals (IEEI) for sandwich dimers and trimers of organic radicals were calculated by the ab initio GMO method. The sign of the IEEI-values was variable, depending on the syn- and anti-conformations of these clusters. The stereochem. selection rules obtained are applicable to designing liquid crystals, Langmuir-Blodgett (LB) membranes and organic solids, which conceivably exhibit (I) ferromagnetism and (II) ferrimagnetism. Several organic magnetic materials are proposed in relation



to the preceding and present theor. results of the high spin mols. and polymers.

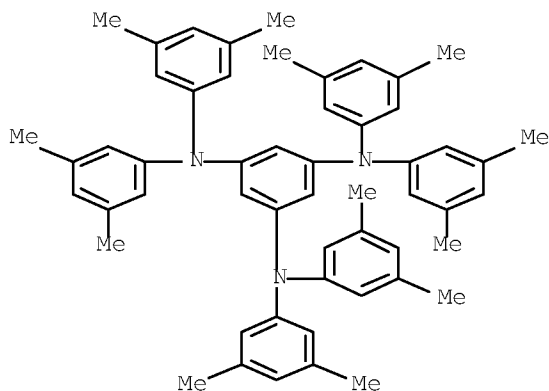
IT 111830-46-7

RL: PRP (Properties)

(spin d. and spin d. product for)

RN 111830-46-7 HCAPLUS

CN 1,3,5-Benzenetriamine, N,N,N',N',N'',N'''-hexakis(3,5-dimethylphenyl)-  
, radical ion(3+) (9CI) (CA INDEX NAME)



CC 22-2 (Physical Organic Chemistry)

IT 3129-17-7 19610-33-4 25483-71-0 25768-05-2 93504-31-5

111830-42-3 111830-44-5D, derivs. 111830-45-6

111830-46-7 111830-47-8 111839-18-0D, derivs.

111839-19-1

RL: PRP (Properties)

(spin d. and spin d. product for)

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